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OCTOBER 2015

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.243

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Ed Brown's Special Forces Model 1911 is a serious handgun built for top performance and hard use, and now it's threaded for a suppressor.

Layne Simpson



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A Metric Marvel

Designed for war 121 years ago, today the 6.5x55mm Swedish Mauser's role is hunting.

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SIG SAUER Elite Performance

SIG's Elite Performance ammo is now offered in calibers ranging from .380 ACP through 10mm Auto and .45 ACP to .44 Magnum.

Joel J. Hutchcroft



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Third Week of August

This season of G&A TV has included three new segments: "Class III Classics," "Tactical Training," and "Power of Air." These segments feature classic full-auto firearms dating from 100 years ago to today, tactical training tips and techniques presented by Kyle Lamb and Richard Nance, and everything you need to know about the rapidly advancing category of airguns.

Fourth Week of August

This week the G&A TV staff takes a hard look at Ruger's new lightweight .45 ACP SR1911, LaserLyte's newest TriColor laser systems, Umarex's Colt Peacemaker airgun, and the classic Class III HK MP7.

First Week of September

This episode gives new meaning to the phrase "a handful of pistol." Featured is Magnum Research's powerful Desert Eagle semiauto in .44 Magnum and .50 AE. You'll be impressed by how easy the recoil from firing these semiautos was managed. This episode also features a Triple Threat training session and highlights on how to get started with airguns.

Second Week of September

One of Springfield's bread-and-butter firearms over the years has been its M1A, and this week Craig Boddington and James Tarr review a new version of the M1A Scout Squad. Also, Kyle Lamb puts Richard Nance through the "El Pollo Diablo" tactical training drill. And the staff takes a good look at Gene Stoner's classic Class III rifle—the Stoner 63.



ONLINE EXCLUSIVE

Can You Shoot an Unarmed Attacker?

Those who carry concealed must always prepare themselves to meet any kind of threat. Here are some thoughts on developing your response.

shootingtimes.com/unarmed-attacker



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SHOOTER'S UPDATE

READERS SPEAK OUT

NEW GUNS & GEAR

ASK THE EXPERTS



7.62x39mm ARs

IN LIGHT OF THE RECENT ATTEMPT TO BAN AMERICA'S MOST POPULAR AR-15 caliber, I am happy to see many major manufacturers finally making the 7.62x39 Russian reliably work in the AR platform. The widely available 7.62x39 fits the bill for the average shooter for power and range with enough accuracy for the intended task at a very reasonable ammunition price.

I do have some reservations about how the industry is addressing the segment. Many entry-level quality ARs in 5.56/.223 are available at around \$700, but I can't find any able to shoot the "Russian" for less than \$1,000, with some well into the \$1,500 area, mainly because of fancy accessories.

Although I may not understand the reasoning put into it, I find the price out of reach for anybody wanting to shoot one of the least expensive rifle calibers available today.

Thank you for a great publication.

Alex Cinque
Via e-mail

Be Careful in Choice of Backstop

In the "Readers Speak Out" section of the July issue, Mr. Bob Langer writes about "Memories of the .32-20." I, too, have been a fan of this cartridge for many years. I thought that you and your readers should know of an incident that happened to me while shooting my .32-20 at a stump, just like Mr. Langer recalled doing.

I put up a paper target on a stump and was shooting it when a projectile ripped through the fabric of my jeans, barely missing my flesh. I didn't know what had happened. I looked around and there on the ground—around, in front, and in back of me—were .32-20 bullets! I was horrified. The bullets had bounced right back at me. I was about 25 yards from that stump. I have heard of similar incidents when shooting at targets around tires where bullets bounce and ricochet completely unpredictably.

Please warn your readers about what can happen when shooting at an improper backstop/target.

Chance Madison
Austin, TX

ST Back Issues Still Timely

This afternoon I was looking through an old drawer and found an April 2011 issue of *Shooting Times*. I normally keep the back issues in another place. I immediately dropped my cleanup project and reviewed the issue and found several articles that were as relevant today as they were four years ago. I am specifically referring to an article by Layne Simpson on big-game hunting bullet accuracy and an article by Joseph von Benedikt about the .280 Ackley Improved. Both articles were as informative and entertaining reading today as they were then. That only convinces me more that past issues of *ST* are clearly worth keeping. I look forward to receiving each month's issue. Thanks to you all for quality work.

John Hart
Dallas, TX



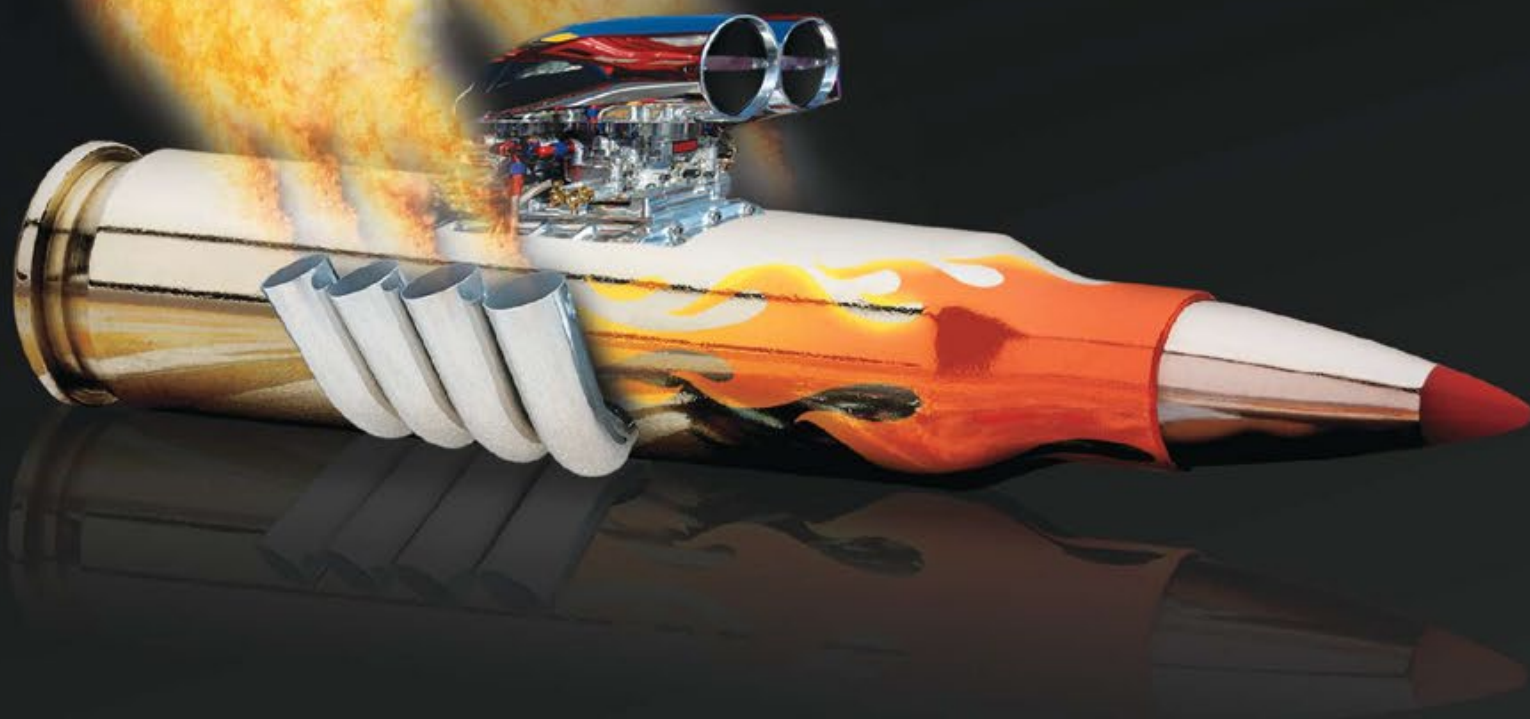
Perfume Or Kryptonite?

In your May issue, you mentioned that Hoppe's No. 9 is now available as an automobile air freshener. I always thought it should have been a perfume for women, as it is the same thing as Superman's Kryptonite to any gun enthusiast.

Kimball Brown
Mesa, AZ

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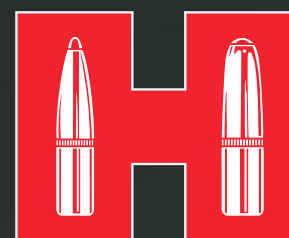
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Browning Storm Front Damascus Knives

BROWNING HAS ADDED A PAIR OF KNIFE MODELS TO ITS STORM FRONT Damascus fixed-blade line. The Damascus blades on the Stag Clip Point and Stag Drop Point (shown) have hollow ground blades that are 4.25 inches long. Both knives have genuine stag handles with stainless-steel bolsters. All Storm Front Damascus knives are made in the USA and are supplied with fine-leather sheaths.

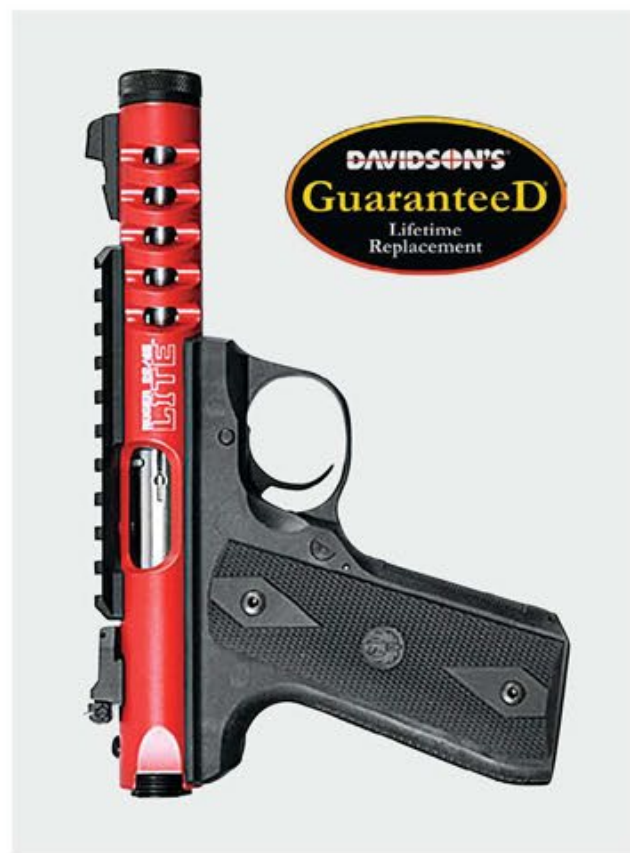
MSRP: \$333
browning.com



Kimber Micro Bel Air

Kimber's new .380 ACP Micro Bel Air has a "Carry Melt" treatment on an aluminum construction with Bel Air Blue Kim Pro II finish on the frame and a mirror-polished stainless-steel slide. Grips are Ivory Micarta. Barrel length is 2.75 inches, and overall length is 5.6 inches. Magazine capacity is six rounds. Sights are fixed low profile. The trigger is match-grade solid aluminum. Weight unloaded is 13.4 ounces.

MSRP: \$810
kimberamerica.com



Ruger Red 22/45 Lite

Available only from Davidson's, the red anodized Ruger 22/45 Lite .22 rimfire semi-auto pistol features a ventilated aluminum upper receiver, a Picatinny rail, a threaded muzzle, 1911-sized interchangeable grip panels, a loaded chamber indicator, and an adjustable rear sight. Magazine capacity is 10 rounds. Barrel length is 4.4 inches. Overall length is 8.5 inches. Weight is 22.73 ounces.

MSRP: \$515
galleryofguns.com



STI DVC Open Competition Pistol

STI's DVC Open competition pistol has a 5-inch, precision-fit, bull barrel that's coated with titanium nitride; a wider than standard frame with full-length dustcover; and an all-new sear design, which breaks crisply at 2 to 2.5 pounds. All steel parts are hard chromed. Other features include the Trubor-style integrated compensator, custom grip, ambidextrous slide-racker, 6-MOA C-More sight, and Dawson guide rod. The pistol is offered in .38 Super and 9mm (tuned for major power factor) and comes with two magazines.

MSRP: \$3,699

stiguns.com



Nikon Prostaff 7i Laser Rangefinder

The new pocket-sized Prostaff 7i laser rangefinder utilizes Nikon's ID (incline/decline) technology, where horizontal distances are given based on incline or decline shooting angles, and provides readings out to 1,300 yards. Ranges are displayed in 0.1-yard increments. Nikon's Hyper Read technology displays distances clearly and automatically shuts off after eight seconds to protect battery life, and Tru-Target technology allows toggling between ranging modes.

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Chronographing Shotshells

Q: I READ STEVE GASH'S "HANDLOADING THE .410 BORE" ARTICLE IN the September issue, wherein he refers to some information on how to chronograph shotshells that was printed in the June 2014 issue. I don't have access to the June 2014 issue, so would you please reprint that information?

Jimmy Doyle

Via e-mail

A: Chronographing is every bit as important for shotshells as it is for rifles and handguns. The chronographs with skyscreens we handloaders use will work with shotshells, but their measurement system is quite different from what the ammo companies use. Unless you know how to interpret them, they can give misleading results.

The chronograph systems used in ammo factories have big start and stop induction coils that assess the entire mass of shot as it passes over them. A computer then determines where the "center" of the mass was when it crossed the start and stop coils and accurately calculates the velocity over a known distance.

The typical chronograph skyscreen system we handloaders use actually measures the very first pellet across the start and stop screens, and the setup is different, too. The expanding powder gases are going much faster than the shot, and the muzzle blast can erroneously trigger the start screen before any of the shot pellets get there. This will give very low (and incorrect) velocities. To prevent this, make a baffle out of 3/4-inch plywood and cut a 2x4-inch rectangular opening in the middle. Mount it on a couple of 1x2-inch boards and put it in a target stand. Position the skyscreens so that the start screen is about 4 to 5 inches behind the baffle and only 3 to 4 inches below the line of the bore. The baffle protects the screens from the muzzle blast and from extraneous ejecta, such as chunks of wads. Shoot with the muzzle no more than a foot in front of the baffle.

The first thing you'll notice when you chronograph factory shotshells is that the velocities differ from those listed in the company's catalog, and they are usually lower.

This pattern is applicable in assessing your handloaded shotshells. Most of us have a favorite factory load for birds, be they clay or feathered. Test it in your shotgun with your chronograph and then match your handload to that velocity on your chronograph system, pattern check the load, and you're set. There are so many handload recipes available for shotshell powders and wads that this is no problem at all.

Steve Gash

Importance of Uniform Case Length

Q: According to Lane Pearce's "The Reloader" column in the September issue, when prepping military-crimp 5.56mm brass for reloading and using in an AR-type rifle, one should measure several cases to determine if they exceed max case length and if they're not too long, they also need to be checked to see that they're closely uniform in length. Why is this important?

Name and Address

Withheld by Request



A: There're two reasons why this is important. First, if the case neck is too long, it may not chamber in your AR properly. Also, if it does fully chamber, the extended case mouth may jam into the chamber throat and clamp onto the bullet. That condition will surely interfere with releasing the bullet when the round is fired, causing excessive chamber pressure.

Second, if you intend to crimp the case mouth into the bullet cannelure, you will not get a uniform crimp unless every case is trimmed to the same length. If it's too short, the case mouth may not be crimped at all. If it's too long, you'll damage the case mouth and/or collapse the shoulder so your handloaded ammunition will jam.

Lane Pearce

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THE RELOADER

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Sako L461

Sako bolt actions have a well-earned reputation for smoothness, and this short-action L461 is as slick as grease on glass.

BY JOEL J. HUTCHCROFT

SAKO ACTIONS ARE KNOWN NOT ONLY FOR BEING smooth, but also for being sized perfectly for whatever cartridge the rifles are chambered for. Sako actions were traditionally made in three sizes. The L461, which is the subject of this column, was made from 1962 (when it replaced the Sako L46 action) until 1992. It is the shortest action length, and it was offered with barrels chambered for .17 Remington, .222 Remington, .223 Remington, .22 PPC, 6mm PPC, and 7x33 Sako. Sometime after 1979, the L461 was also called the A-I.

Mechanicals

The L461 featured here is the Standard Sporter version, and it weighs 6 pounds, 5 ounces unloaded and without a scope. There's no rear sight, but it has

Sako's integral dovetail scope mount bases. It also has a checkered walnut Monte Carlo-style stock with sling-swivel studs and black plastic buttplate.

The single-stage trigger is adjustable, but the stock has to be removed in order to access the adjustment screws. This rifle's trigger is 0.17 inch wide and serrated, and the trigger guard/hinged floorplate unit is steel.

The L461's bolt has dual locking lugs. One of the lugs is slotted to accommodate the mechanical ejector. The checkered bolt shroud is steel.

The L461 has a two-position safety. Forward allows firing, and rearward is the "Safe" position. When the safety is engaged, the bolt cannot be lifted or removed. A cocking indicator protrudes rearward under the bolt shroud when the action is cocked.



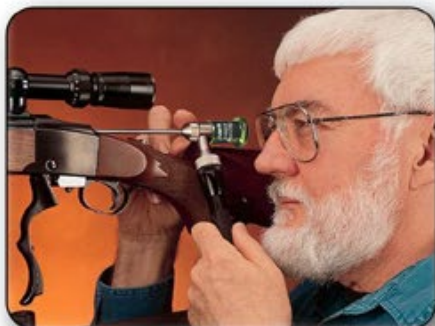
The Sako L461 was built from 1962 until 1992. This Standard Sporter model features integral scope mount bases, a checkered walnut stock, and a 23.5-inch-long barrel.

ACCURACY.

Accuracy suffers when you do a lot of shooting and not much cleaning. What's in your bore?

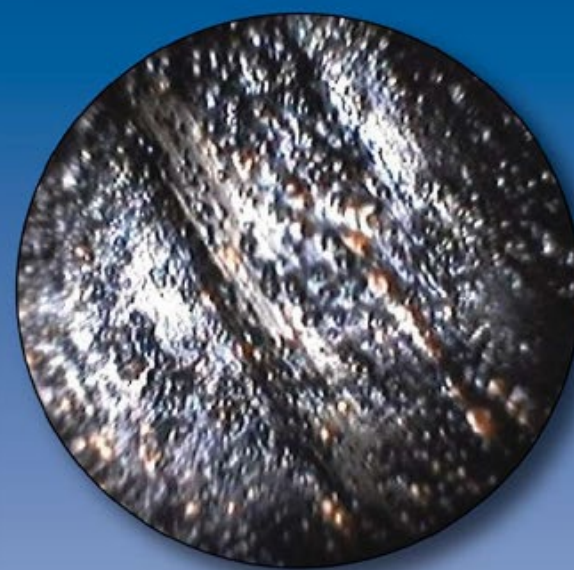
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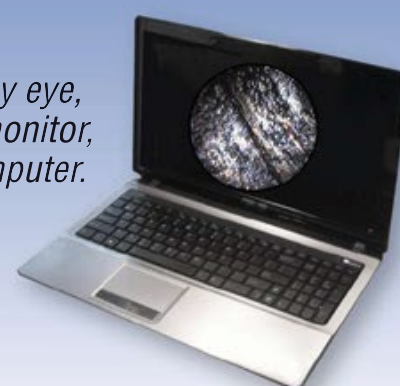


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L461

MANUFACTURER	Sako
TYPE	Bolt-action repeater
CALIBER	.222 Rem. rechambered to .223 Rem.
MAGAZINE CAPACITY	5 rounds
BARREL	23.5 in.; rifling: 6 grooves, 1:14 twist
OVERALL LENGTH	42.5 in.
WEIGHT, EMPTY	6 lbs., 5 oz.
STOCK	Checkered walnut
FINISH	Bright blue barreled action, high-gloss stock
LENGTH OF PULL	13.63 in.
SIGHTS	Ramped front with dove-tailed blade; integral scope-mount bases
TRIGGER	3.13-lb. pull (as tested)
SAFETY	Two-position

The sporter-weight barrel is 23.5 inches long, and the diameter at the muzzle is 0.58 inch. It's marked "Bofors Steel" on the right-hand side.

The L461 was sometimes called the Vixen, and rifles imported to the U.S. by the firm of Garcia had



the model name stamped on the bottom of the barrel just ahead of the stock's fore-end, but the sample rifle is not marked in that manner. Other versions of the L461 included Deluxe and Heavy Barrel models. Vixen models included the Sporter, the Heavy Barrel Sporter, and the Mannlicher Carbine.

Magazine capacity of the L461 is said to be five rounds, but I was able to squeeze six .223 Rem. rounds into this rifle. Another oddity of this rifle is the ramped base of the front sight is grooved for a hood.

The sample rifle was originally chambered for .222 Rem. (left) but was rechambered to .223 Rem.

SAKO L461 ACCURACY & VELOCITY

AMMUNITION	VEL. (FPS)	E.S. (FPS)	S.D. (FPS)	100-YD. ACC. (IN.)
.223 Remington				
Black Hills 52-gr. Match HP	3157	23	13	0.38
Australian Outback 55-gr. BlitzKing	3005	27	14	0.63
Australian Outback 69-gr. MatchKing	2746	28	14	1.10

NOTES: Accuracy is the average of three, three-shot groups fired from a sandbag bench-rest. Velocity is the average of five rounds measured 12 feet from the gun's muzzle.



I fired three .223 Rem. factory loads through the L461, and I was pleased with the results.

Provenance

The rifle I shot for this report belongs to my friend David Faubion. David is the managing editor of our special interest publications. The rifle had belonged to David's father, Bill, until recently. Its serial number indicates it was made in 1962.

The rifle was originally chambered for .222 Rem., but somewhere along the line before Mr. Faubion acquired it, it had been rechambered to .223 Rem. It had a vintage Bausch & Lomb BALtur 2.5X scope in Sako rings, and its crisp trigger pull averaged 3 pounds, 2 ounces.

The rifle shows considerable wear, but it is in perfect working order, except for a tendency to not eject cases free from the action.

Rangetime

I fired three .223 Rem. factory loads through the L461, and I was pleased with the results. The rifle's original chambering of .222 Rem. used a twist rate of 1:14, which David and I thought might preclude the rifle from shooting accurately with heavy-bullet .223 Rem. ammo, but my shooting of Australian Outback's 69-grain MatchKing factory load produced some surprising results. That load averaged 1.10 inches for the three, three-shot groups at 100 yards, but the bullets were keyholing in the targets. The lightest bullet I fired was Black Hills's 52-grain HP (which produced an average velocity of 3,157 fps measured 12 feet from the muzzle), and it was the most accurate for me. It averaged 0.38 inch. I never had a string in which all three bullets went into the same hole, but nevertheless, 0.38 inch is very satisfying, especially from a sporter-weight barrel.

I hope I don't get David into trouble with his dad by saying that he had told me he was considering rebarreling the old L461 to the .25-45 Sharps cartridge. I'm trying to dissuade him from doing that. I think the rifle is just fine the way it is. **ST**

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Revolver Cartridges for Hunting Big Game

Knowing your cartridge's ballistics will make your handgun hunt more successful and more satisfying. **BY ALLAN JONES**

HANDGUN HUNTING IS A CHALLENGING SPORT that makes us hone our handgunning and stalking skills. Done right, it is a rewarding challenge. I'll be focusing here on revolver cartridges and their ballistics and not revolver type or accessories.

Always check with the game regulations in the area you plan to hunt with a handgun. State game laws once gave little thought to the hunting handgun. Today, most state game departments have issued handgun rules, but there are significant variations that could bite hard if you fail to do the research. Some regulations can be convoluted; you may be explaining downrange ballistics to one of our hard-working game wardens.

I'm skimming over the .357 Magnum because it is realistically limited to the smallest deer species. Even on them, the classic hunting load is a 158-grain JSP or hard-cast SWC bullet loaded to maximum safe pressures.

.41 Magnum

With the right bullet, the .41 Magnum is a fine big-game choice. It compares favorably with the .44 Magnum in downrange trajectory and, in equivalent barrel lengths, is not far off its big brother in power. Look to 210-grain JHP or JSP bullets. Most are designed for hunting, and either will give adequate penetration for up to large deer species and elk

if care is taken and the range is not too long. Avoid conventional bullets lighter than 210 grains; most are designed for fast expansion.



.44 Magnum

This is the classic handgun hunting cartridge. I prefer barrels at least 6 inches long to compensate for the gas loss at the cylinder gap. Most 240-grain factory loads will produce from 1,200 to 1,250 fps from a 4-inch-barreled revolver, but velocity can exceed 1,400 fps from a 7.5-inch barrel.

The .44 Mag. offers a wide choice of bullet weights and styles in factory ammo and even more for the handloader. Were I fly-fishing in bear country, I would have my old Super Blackhawk handloaded with a 300-grain JSP. Shorter barrels are best treated to lighter softpoints weighing at least 240 grains for medium to large deer. There are some excellent lighter HP bullets designed for hunting smaller deer variants that are quite effective, like the Hornady 225-grain FTX and the Speer 210-grain Gold Dot HP.

If you want a time-tested game-getter, think about the 250-grain Keith SWC cast hard. It will penetrate as well as heavier jacketed bullets and, at 1,400+ fps from a 7.5-inch barrel, has very attractive trajectory and penetration profiles compared to 300-grain jacketed bullets.

Revolver cartridges ranging from the .41 Magnum to the .480 Ruger can be very effective on big game if they're loaded with the right bullets.

.45 Colt

Unless handloaded to higher pressure than industry standards, the .45 Colt is limited to short-range shots on small-bodied deer. Go for a wide, flat bullet nose and penetration—the Keith 255-grain SWC will do okay within the 14,000-psi factory pressure limit.

If you choose to handload to higher pressure and your .45 Colt revolver is proven to handle such loads, my comments about bullet choices for the .44 Mag. apply. We took such loads to 25,000 psi at Speer and came close to .44 Mag. velocities with equivalent bullets. If you choose this path, verify that your revolver is capable of handling the extra pressure and follow lab-tested load data to the letter.

.454 Casull

I could easily devote a couple of columns to the development history and management of this big thoroughbred—and may do so in the future—but for now I'll stick to the basics. The .454 Casull in the hands of a skilled handgun hunter has the potential to handle just about any North American game and has proved itself on African plains game as well. For really large game, use 300-grain JSP bullets when possible for deep penetration. Many of the 300-grain choices today are HP designs but, fortunately, are modern developments with tough jackets for penetration.

.460 & .500 S&W Magnums

These were new as I wrapped up my tenure at Speer, so I have less time with them than with the other cartridges; however, some general guidelines apply. These are very high-pressure cartridges requiring a heavy bullet jacket. Factory ammo takes this into consideration, but some .45-caliber bullets that could be handloaded in the .460 have thinner jackets developed before the appearance of cartridges capable of 60,000 to 65,000 psi. Check with the bulletmakers to see what bullets they recommend for the .460.

The .500 S&W should not be loaded with thin-jacketed bullets designed for the .50 Action Express.



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Hornady offers an impressive 500-grain InterLock XTP SP factory load for the .500 S&W. It approaches the velocities of standard-pressure 500-grain handloads fired from a .45-70 rifle.

.475 Linebaugh & .480 Ruger

Both are relative newcomers and offer excellent field performance with 0.475-inch bullets. The larger Linebaugh case was designed around 400-grain bullets; the smaller .480 Ruger led to lighter bullets and better lends itself to reduced practice loads. There is no magic required to get fine performance from either. Simply follow published, lab-tested data. Again, be sure to balance the bullet weight to the game being hunted.

Downrange Considerations

First, go back to my comment on game laws. Some are strange, such as requiring 1,000 ft-lbs at the muzzle or 500 ft-lbs at 100 yards. These may eliminate some perfectly capable big-game cartridges. The accompanying chart shows a comparison of downrange energies for the cartridges fired from actual revolvers. You can see if your cartridge fits regulations based on

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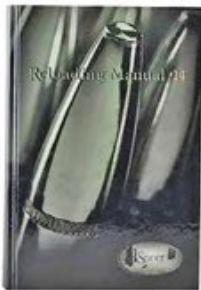
CARTRIDGE	BARREL LENGTH (IN.)	MUZZLE VEL. (FPS)	MUZZLE ENERGY (FT-LBS)	50-YD. ENERGY (FT-LBS)	100-YD. ENERGY (FT-LBS)
.41 Magnum 210-gr. JHP	6.0	1295	782	642	546
.44 Magnum 210-gr. JHP	7.5	1664	1291	992	768
.44 Magnum 240-gr. JHP	7.5	1451	1122	895	730
.44 Magnum 270-gr. JSP	7.5	1310	1029	851	724
.45 Colt 250-gr. JHP	5.5	874	424	388	356
.45 Colt High-Vel. 250-gr. JHP	7.5	1203	803	665	573
.454 Casull 300-gr. JHP	7.5	1630	1770	1486	1251
.460 S&W 300-gr. JHP	8.4	1784	2120	1784	1498
.475 Linebaugh 325-gr. JSP	6.0	1429	1473	1200	994
.475 Linebaugh 400-gr. JSP	6.0	1319	1545	1258	1058
.480 Ruger 275-gr. JHP	9.5	1695	1754	1365	1067
.480 Ruger 325-gr. JSP	9.5	1492	1606	1302	1070
.500 S&W 350-gr. JSP	8.38	1739	2350	1872	1491

NOTES: These downrange energy figures are based on actual velocities obtained in revolvers with barrel lengths as listed.

downrange energy. As these are real-world velocities, they reflect the barrel lengths available when we developed *Speer Reloading Manual #14*. For example, the only .480 Ruger model available at the time sported a 9.5-inch barrel, making its velocities “look” more powerful than the .475 Linebaugh from a 6-inch barrel. When comparing apples to apples, the Linebaugh wins.

Your sight-in strategy is important, too, affecting the need for holdover at range. If you zero for dead-on at 25 yards, you leave something on the table. I recommend a minimum 50-yard zero—more like 75 yards for the really high-velocity cartridges.

A little planning and research will make your revolver hunt much more satisfying.



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New from Swift

Swift Bullet Co. has released a new edition of its loading manual and a new .375-caliber big-game “Break-Away” bullet.

BY LANE PEARCE

ACCORDING TO SWIFT CEO BILL HOBER, THE IN-novative features of the new Break-Away Solid bullet comprise the most comprehensive improvement to this type of bullet during the last century. Swift engineers spent two years developing and proving this unique solid bullet design. In addition to laboratory testing, Hober and his PH shot several elephants and Cape buffalos to demonstrate its reliability and terminal performance.

There were specific design criteria for the new solid bullet. First, it had to provide 100 percent reliable feeding. It also had to deliver a straight wound channel penetrating to/through the animal's vitals. The bullet material and construction had to be compatible with the physical properties of older big-game double and magazine rifle barrels, i.e., first...do no harm!

Hober pointed out that the A-Frame bullet is perfectly suitable for most big-game hunting situations, but the reality is some situations require a solid to do the job right. So the new solid had to shoot to the same point of impact as an A-Frame of the same weight. In addition, it would feature a rebated ogive to provide the shortest driving band to reduce chamber pressure and jacket fouling.

Most solids fall into two categories. They have a full metal jacket closed at the nose with a heavy metal

core, or they are machined, monolithic designs. The new Swift solid falls in the former group but with unique differences.

The round, black polymer tip is much smaller in diameter than the rest of the bullet. Its sole purpose is to guarantee the cartridge will reliably feed from the magazine. It's hard enough to withstand normal incidents like dropping, recoil impact, and aerodynamic forces during flight. It also protects the jacket nose configuration and completely dis-integrates upon impact.

A typical roundnose FMJ solid may be diverted when striking bone. The jacket nose cavity in the Swift solid creates a more aggressive meplat to help assure a straight/deeper wound channel. The jacket metal is a proprietary composition akin to naval brass and was down-selected after testing several candidate materials.

The pure lead core allows bullet minimum overall length. Coupled with the copper alloy jacket, the resulting design is much more supple than a monolithic solid, ensuring compatibility with older barrels.

Of all of the design features noted, I could evaluate only a couple. First, I rapidly cycled several test rounds through my Ruger Hawkeye African bolt action. Every round fed smoothly into and from the chamber, and the nose tips survived intact.



Swift Bullet Co. has a new edition of its reloading manual, which the author thinks is the best full-service manual on the market. The company also has brand-new Break-Away Solid big-game bullets.



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.375 Ruger

Developed by Hornady and Ruger, the .375 Ruger cartridge, which happens to be one of the author's favorites, was introduced in 2006. It equals the .375 H&H but uses a beltless case and fits in a standard-length rifle action.

What's so special is the unique way the information for each cartridge is presented. Each section includes a detailed cartridge drawing, a brief narrative of its history, and other special attributes.

I also fired 63 .375 Ruger handloads loaded with the Break-Away Solid (I've listed three representative loads in the accompanying chart), and I assembled some duplicate test loads with Swift's 300-grain A-Frame bullets. Twenty-four rounds (12 each of both bullets) yielded a composite group of only 3.25 inches at 100 yards—all within 2 inches of the same point of impact. Velocities of the A-Frames were about 5 percent greater than the same-weight Break-Away Solids.

Hober said that nearly 5,000 bullets have been distributed to professional hunters and clients for extensive field-testing. Assuming nothing significant arises, nine new Break-Away Solids (from .366 to .505 calibers) will be available soon. MSRP was not set at presstime, but he suggested a box of 24 bullets should cost about the same as two boxes of similar A-Frame bullets.

Swift Reloading Manual Number Two

The first Swift reloading manual was published 13 years ago, and naturally it included load data specifically for the various Swift bullets. I thought the book's layout was the best of the "full-service" reloading manuals.



What's so special is the unique way the information for each cartridge is presented. Each section includes a detailed cartridge drawing, a brief narrative of its history, and other special attributes. Then there are illustrations of each bullet suitable for that round, including dimensional and specific ballistics criteria. The first page of each section also has drawings showing Swift Scirocco and/or A-Frame bullets seated to illustrate maximum overall length and propellant load density.

Subsequent pages cover each specific bullet, providing the usual multiple load recipes for various propellants, including starting and maximum charge weights with corresponding velocities and load densities. The data sheets also provide the specific cartridge case and primer employed and test barrel length, twist rate, etc.

Each page also has an exterior ballistic chart (out to 400 to 600 yards), spanning the range of velocities shown in the load data for that specific bullet.

The chart also reflects an appropriate "zero" range for each cartridge/bullet application.

The new *Swift Reloading Manual Number Two* follows the exact same format with minor refreshing of the introductory editorial content. There's a treatise related to long-range hunting, including appropriate cautions about the probable folly of using predicted ballistic data, especially at extended ranges, without actually firing your rifle and handloads at 100-yard intervals beyond 500 yards.

Detailed drawings also illustrate point blank range (PBR) criteria, uphill and downhill shooting trajectory considerations, and how to recognize excessive internal case pressure by noting various cartridge case indicators, including case head expansion.

But the most important change is the significantly expanded load data. There are nearly 150 more pages

SWIFT 300-GR. .375 BREAK-AWAY SOLID ACCURACY & VELOCITY

BULLET	POWDER		VEL. (FPS)	E.S. (FPS)	S.D. (FPS)	100-YD. ACC. (IN.)
	(TYPE)	(GRS.)				
.375 Ruger Hawkeye African, 23-In. Barrel						
Swift 300-gr. Break-Away Solid	Power Pro 4000MR	76.5	2429	79	27	2.03
Swift 300-gr. Break-Away Solid	Reloder 19	79.5	2398	26	6	1.87
Swift 300-gr. Break-Away Solid	Reloder 22	81.5	2476	49	17	1.73

NOTES: Accuracy is the average of at least three, three-shot groups fired from a sandbag benchrest. Velocity is the average of nine rounds measured eight feet from the gun's muzzle. All handloads used Hornady brass and Federal Gold Medal 215M primers.

All load data should be used with caution. Always start with reduced loads first and make sure they are safe in each of your guns before proceeding to the high test loads listed. Since *Shooting Times* has no control over your choice of components, guns, or actual loadings, neither *Shooting Times* nor the various firearms and components manufacturers assume any responsibility for the use of this data.



of information! Swift bullets are now available in eight new calibers (.22, .24, .404, .405, .41, .50, .500, and .505). I tried to count the new bullets offered in the 15 or so original calibers. All told, there are at least a couple dozen new ones, including six Scirocco and four A-Frame H/R (heavy revolver) bullets, the latter featuring large nose cavities to ensure expansion.

All of the new-caliber bullets resulted in load data for 34 additional cartridges, ranging from .223 Remington to .500 Nitro Express.

By the way, those of you who own a .348 Winchester Model 71, Swift offers a new 200-grain flatnose A-Frame bullet along with six tested load recipes. There're also 150- and 170-grain A-Frame FN bullets for reloading .30-30 Winchester.

For a few of the 34 additional cartridges, load data for Norma and/or VihtaVuori propellants complement the usual IMR, Hodgdon, and Winchester data provided for all of the other rounds. I noted a similar enhancement for several cartridges carried over from the first edition, including .243 Winchester, 6.5x55mm Swedish Mauser, .260 Remington, and 9.3x62mm.

Some of the original cartridge data have also been refreshed with recipes for new propellants, including Hodgdon CFE 223, Hybrid 100V, Benchmark, LEVERevolution, Superformance, and Retumbo. IMR 4007 SSC and 8208 XBR recipes are listed for several rounds as well as Alliant AR-Comp, Reloder 10-X, and Power Pro 2000MR/4000MR.

At a list price of only \$39, the *Swift Reloading Manual Number Two* is a really good deal.

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How to Build a Portable Rifle-Shooting Table

Preparing for a prairie dog shoot, Reid came up with this inexpensive, easy-to-build, portable rifle-shooting table.

BY REID COFFIELD

I'VE SEEN A LOT OF FOLKS USE A LOT OF DIFFERENT shooting tables at the range and in the field over the years. These have varied from expensive commercial models to old ironing boards and card tables. They all got the job done, more or less, but some were obviously better than others. Not long ago a buddy and I decided to start getting ready for a prairie dog outing. One of the things I wanted was a decent portable shooting table. It had to be light enough for an old guy to handle, sturdy enough to provide solid support, and small enough to be easily portable in a modest-size vehicle. And yes, it had to be inexpensive.

I checked various shooting suppliers who offered portable benches and also looked at homemade benches. The good ones were generally too heavy, too big, or too expensive, and the cheap ones looked too flimsy. None met my requirements, so I decided to build one. That way I could incorporate my own ideas and some that I picked up during my search.

Materials

I began by looking for folding legs. The legs I found are sold under the name Rugged Buddy and are made by Target Precision Inc., in Gardena, California. These

1.25-inch-diameter, painted steel legs fold flat but open to lock securely in place when deployed.

They're sold to be used on sawhorses and machine and tool stands. They're rated to take up to 1,000 pounds, so they're plenty strong.

By the way, they can be shortened if necessary.

In fact, I cut mine back 3 inches and ended up with a 31-inch-high bench.

The next major component was the tabletop. For this I purchased a 2x4-foot piece of 0.75-inch-thick plywood. Both sides have a nice smooth oak surface. (After having picked up more than my share of splinters, I wanted a smooth surface where this would not be a problem.) In addition, I had one 4-foot-long, 0.75-inch-thick, 3.5-inch-wide board to be used as the anchor point for the legs and as the main support for the tabletop.



A folding rifle-shooting table is easy to make yourself. One helpful hint is to make sure the height of the table is compatible with the height of the shooting chair or stool.

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A 1-inch wood spade drill was used to make notches along the edge of the shooting table to provide handy and secure places for resting rifles.

Construction

Construction required only basic tools: saw, power hand drill, screwdriver, carpenter's square, etc. This is a very simple do-it-yourself project.

The first task was to determine the size of the top of the shooting table. I did this by setting up my spotting scope, adjustable front rest, rear sandbag, one of my varmint rifles, and even a box of ammo on the plywood. It was then a simple matter to determine just how much surface I really needed. I couldn't reduce the 2-foot width of the plywood as that was about the width of my steel legs and I didn't want them extending beyond the tabletop when transported. I could, however, reduce the length of the table, which I did. I cut the length of the plywood sheet back by 10 inches. You might want yours longer or even shorter. The important point is to have enough space for yourself and your gear.

While I could've waited until later, I went ahead and made the shooter cutout in the tabletop. Since this is a right-hand-only bench, I could make the cutout fairly deep. This allows a bit more room for

placement of my spotting scope to my left. Again, you can—and should—adjust your cutout to meet your needs. My cutout was 10 inches deep and about 22 inches long.

One word of caution: Don't make your cutout so deep it runs into the center brace.

After trimming the length of the top and making my shooter cutout, I drew a center line down the length of the underside of the top and attached the 3.5-inch-wide board, centered on this line. This board functions both to strengthen the tabletop and as an anchor point for the leg bases. When you attach the board, be sure to use wood screws and wood glue. The more securely this brace is attached to the top, the more rigid and durable the top will be.

When installing all the screws, I drilled pilot holes, and for the brace board, I also countersunk the heads of the screws. I didn't want any screws projecting beyond the board as a few would be located under the leg bases, and those bases needed to be perfectly flat.

After securing the brace, the bases for the legs were attached with screws provided by the manufacturer.



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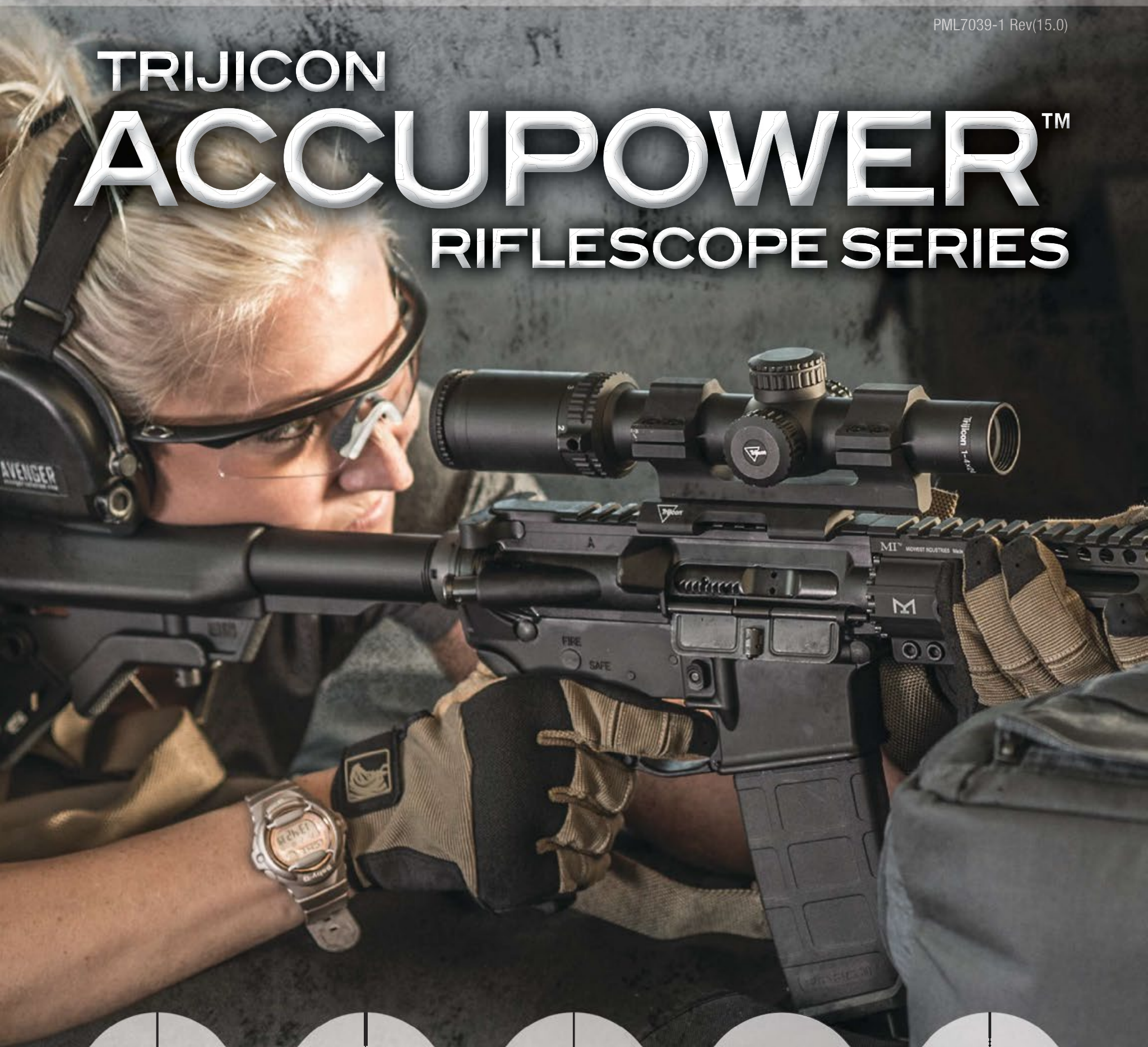
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Note: Reticles enlarged for detail. Not all reticle options are available in each model.



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How to Build a Portable Rifle-Shooting Table



The commercial-made folding legs that the author chose lock firmly in place when deployed. With the spring lock disengaged, the legs can fold easily for storage or transporting.

The legs were then assembled, and the project was almost complete.

All corners were rounded, removing any sharp edges. A 1-inch-diameter spade drill was used to put several notches along the side of the bench. You always need a safe, handy spot to rest a rifle, and with these deep notches, there's very little chance of the rifle falling or sliding off to the side.

The final feature was to use that same spade bit to make a carrying handle cutout. When doing this, make sure you place it at the center of balance. Because you've removed some wood for the shooter cutout, the handle will need to be a bit farther forward than the midpoint.

Once the bench was completed, I did a bit of touch-up sanding to smooth out any rough edges. Then I varnished the bench. If you prefer, you can paint or coat yours with an epoxy. The important thing is to use some type of coating to protect the wood.

My total cost was only about \$75, including the price of the legs. Compared to commercial benches, that's a heck of a bargain.

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SUPPRESSOR- READY

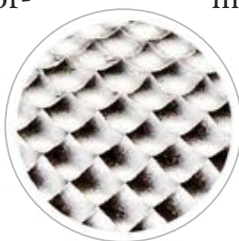
ED BROWN'S SPECIAL FORCES MODEL 1911 IS A SERIOUS HANDGUN BUILT FOR TOP PERFORMANCE AND HARD USE, AND NOW IT'S THREADED FOR A SUPPRESSOR.

BY LAYNE SIMPSON



ED BROWN PRODUCTS WAS FORMED IN 1988 by Ed Brown, gunsmith, tool and die maker, competitive shooter. The company originally specialized in precision-machined parts for the 1911 pistol, and if memory serves me correctly, a beavertail grip safety was among the first products offered. Barrels, slides, frames, and all the other parts that come together to form America's favorite pistol eventually filled the catalog. The inevitable move to offering complete pistols made Ed Brown Products one of the few companies to manufacture all of its component parts in-house. Today, the operation is run by Ed's sons, Travis and Wade.

The models offered by Ed Brown Products are the Classic, Executive, Special Forces, and Kobra. Each model is available in several variations, including different finish options and type of steel used in the frame and slide. For example, the SF3-SS Special Forces featured in this report has a stainless-steel frame and slide with a brushed finish. You can opt for stainless steel with a black Gen4 surface coating. (A more durable finish that was introduced in 2006, Gen4 is described as a thermo-set polymer coating. It has a bead-blast appearance for glare



resistance. Apparently, it has been adopted by several military units.) For those who don't care for black guns, the Gen4 is available in Stealth Grey and Battle Bronze. Other Special Forces options include a light rail on the frame and a Commander-length 4.25-inch barrel. A California-approved variation is also available.

Quality In, Performance Out

With the Special Forces, as with all of the Ed Brown models, the customer has numerous options from which to pick and choose. For example, the pistol I have been shooting has the Chainlink III surface treatment on the front-strap and mainspring housing. It consists of small dimples, much like on the surface of a golf ball. It is easier on the hand than sharp checkering and offers a far more positive grip than a smooth surface. The dimples of the optional Chainlink II version are a bit larger in diameter, while those of Chainlink I are slightly elongated. Other optional surface treatments are smooth, serrated, 25-lines-per-inch checkering (standard or skip-line), and snakeskin texture. Both flat and arched mainspring housings are available, as is a version with a lanyard bar.

A downside to shooting the Model 1911 pistol with a high-grip hold, as many of us do, is that the palm of the hand can

SUPPRESSOR-READY



Options abound on the Special Forces. The pistol fired for this report came with Chainlink III treatment on the frontstrap and the mainspring housing, a Memory Groove grip safety, and a tactical-style extended thumb safety. The adjustable trigger is Ed Brown's classic three-hole design with aluminum finger piece and steel bow.

fail to depress a grip safety of original design to full disengagement, thereby preventing the gun from firing when its trigger is pulled. A raised tab at the bottom of the Ed Brown Memory Groove grip safety prevents that from happening. And since the upper sweep of the safety along with undercutting at the terminus of the frontstrap and the trigger guard positions the hand as close as possible to the axis of the barrel, the decrease in muzzle rise results in quicker and more accurate snake-eye double taps.

The narrow-profile tab of the tactical-style extended thumb safety on the Special Forces pistol makes it a popular choice for concealed carry. I shoot a 1911 with my thumb resting heavily on the safety, and a wider tab reduces the likelihood of a malfunction due to the thumb rubbing against the slide as the gun is firing. For that reason, I would opt for the optional "wide" extended safety, which, in my opinion, is still narrow enough for concealed carry. And if plans for the gun also include IDPA competition, an ambidextrous version is another option.

The trigger is Brown's classic three-hole design with a lightweight aluminum finger piece joined to a heat-treated steel bow. With its 2.75-inch length of pull, the long trigger on the gun is perfect for me, but those with smaller hands will likely choose the short version.

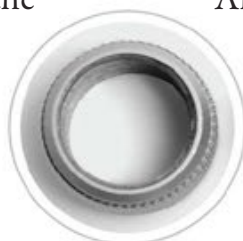
The hammer with its Commander-style spur is precision-machined and chamfered with its sides narrowed to eliminate

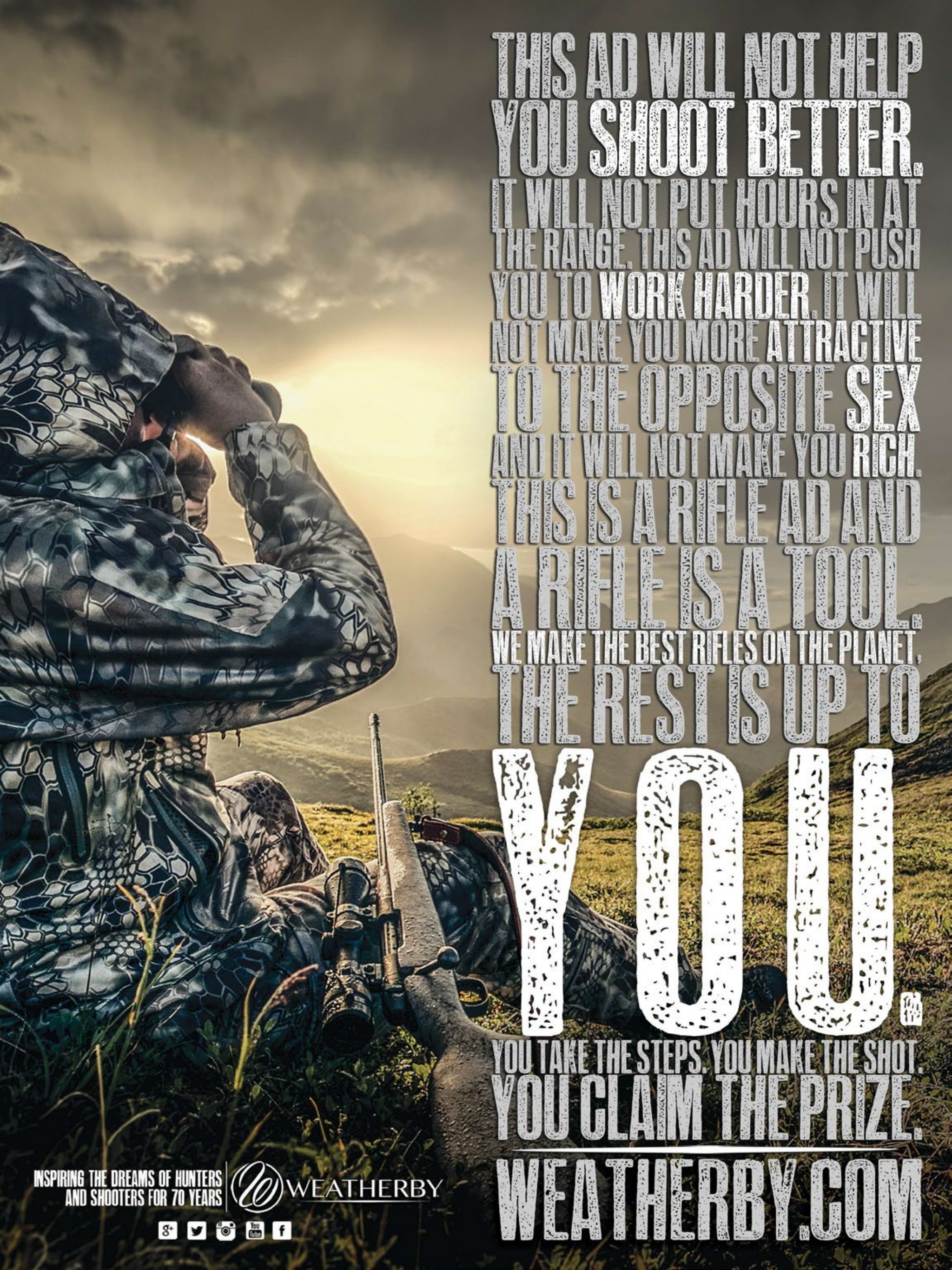
drag on the slide. A lowered strut pinhole reduces full-cock mainspring pressure. Precise engagement between the perfectly square hooks of the hammer and a sear also machined from bar stock assure clean breaks and minimal pull weight variation.

And how good is that? Ten pulls with a Lyman digital scale varied from 4.13 pounds to 4.38 pounds, with seven of the pulls measuring 4.35 pounds. That's excellent consistency to say the least. The slight amount of creep I felt when carefully squeezing off shots over a sandbag was undetectable when I put the gun through its paces shooting on IPSC targets.

The pistol's barrel begins as a 3-pound bar of T-416 stainless steel, which is certified as pure in content and uniform in hardness from chamber to muzzle. After being exterior-profiled on CNC machinery, it is drilled, reamed, and broach-rifled to six lands and grooves at a left-hand twist rate of 1:12 inches. The end result is a barrel capable of delivering tackdriving accuracy with both jacketed and lead bullets. (The optional blued carbon-steel barrel delivers the same level of accuracy.) A polished feedramp along with fine-tuning of the extractor assures reliable feeding of ammunition with bullets of various nose profiles.

The extra prefitted, suppressor-ready barrel included with the test gun is another option. Measuring 5.5 inches from hood to threaded muzzle, it comes with a thread protector and its own bushing. Be advised that Ed Brown Products does not sell suppressors; however, a suppressor adds weight to the barrel,





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Try as he might, the author was unable to make the pistol malfunction.

SPECIAL FORCES	
MANUFACTURER	Ed Brown Products edbrown.com
TYPE	Recoil-operated autoloader
CALIBER	.45 ACP
MAGAZINE CAPACITY	7 rounds
BARREL	5.0 in.
OVERALL LENGTH	8.75 in.
WIDTH	1.30 in. (grip)
HEIGHT	5.75 in.
WEIGHT, EMPTY	42.3 oz. (as tested)
GRIPS	Black G10
FINISH	Stainless
SIGHTS	Fixed dovetailed Trijicon night sights
TRIGGER	4.25-lb. pull (as tested)
SAFETY	Extended thumb safety; beavertail grip safety
MSRP	\$2,695 (additional \$325 for extra threaded barrel and bushing)

so for reliable functioning, the recoil impulse has to be modified by the installation of a second item called a Linear Inertial Decoupler. It is available from several companies.

My Special Forces pistol came with the suppressor-ready barrel already installed, and my plan was to shoot it with a suppressor, but unfortunately, my game plan ran headlong into the legalities of obtaining one on fairly short notice. Anyway, I did all of the shooting for this report with the threaded barrel installed.

As to be expected, the mouth of the magazine well is beveled for smooth magazine insertion. The stainless-steel magazine has a blued steel follower, and bold-print numbers beside its side windows indicate at a quick glance how many rounds are on board. Most customers prefer a seven-round magazine because it fits flush with the bottom of the grip when not wearing a bumper pad. An eight-rounder is available, and while it does extend ever so slightly, I cannot imagine it being enough to matter for concealed carry.

Frames and slides start as steel forgings with type 416 stainless steel standard. Carbon steel is also available with either a blued or Gen4 finish. After final CNC machining, frame and slide are

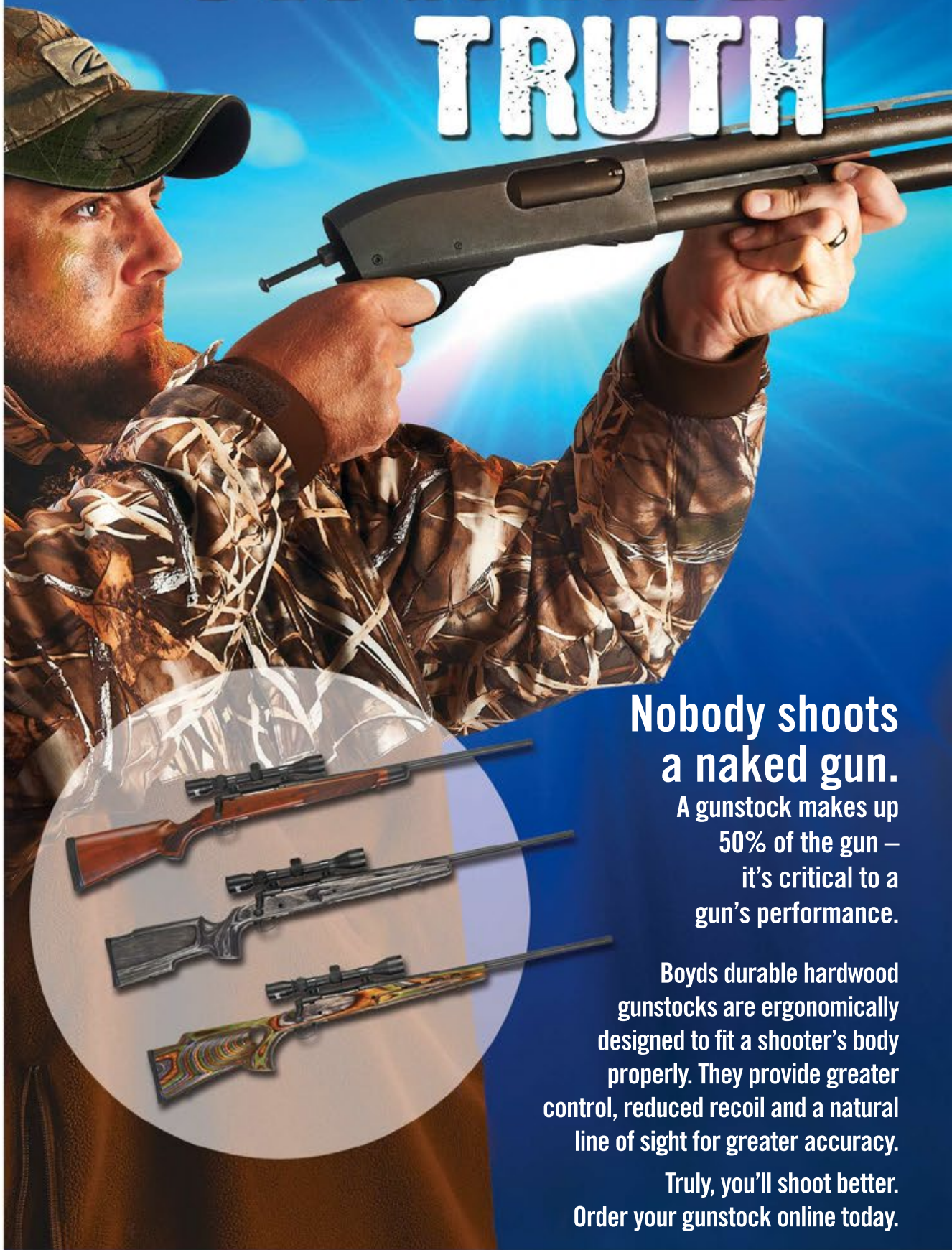


hand-polished and then all sharp edges are contoured. Slide-to-frame fitting is also done by hand. The slide has serrations at the rear, and for additional cost they can be added up front. A lowered and flared ejection port assures reliable exit of spent cases.

Trijicon sights with green, tritium-illuminated dots are dovetailed to the slide. Respective widths of the rear notch and front blade are 0.115 inch and 0.120 inch. Yellow and orange dots are options on the rear sight, but Trijicon offers a green dot only in the front sight because it is brighter and the lamp is longer lasting. Green and yellow have a 12-year warranty, while orange is warranted for five years. When the dots eventually fade, the slide of the gun (or sights only) can be sent to Trijicon for lamp replacement at nominal cost.

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Over 300 rounds of hardball, hollowpoint, and semiwadcutter ammunition were fired, and the Special Forces didn't miss a beat.

Totally Reliable, Incredibly Accurate

A top-quality Model 1911 pistol should function reliably with a variety of ammunition loaded with bullets of varying nose profiles, so the ammunition I used for putting the Special Forces through its paces was selected accordingly. Any gun will feed 230-grain hardball, but some will balk on a semiwadcutter, such as the 200-grain lead bullet offered by Black Hills. Dramatically shorten the nose of that style of bullet, as exemplified by the 200-grain metal case wadcutter in Remington match ammo, and an even higher percentage of guns start choking up.

Prior to shooting the gun for accuracy, I fired 200 rounds offhand at IPSC targets. Several magazines were emptied with the gun held right-side down and left-side down. After cleaning the barrel, I settled down behind sandbags and squeezed off 25, five-shot groups at 25 yards. That brought the count to just over 300 rounds without a malfunction.

Determined to make the gun choke, I picked up an empty and positioned it in the magazine beneath a loaded round. The top round fired, the slide cycled, and the empty case slipped into the chamber like grease on glass. Repeated attempts were also soundly defeated. Next an empty case was inserted in the magazine, and the magazine was inserted in the gun with its slide locked back. When the latch was tripped, the slide



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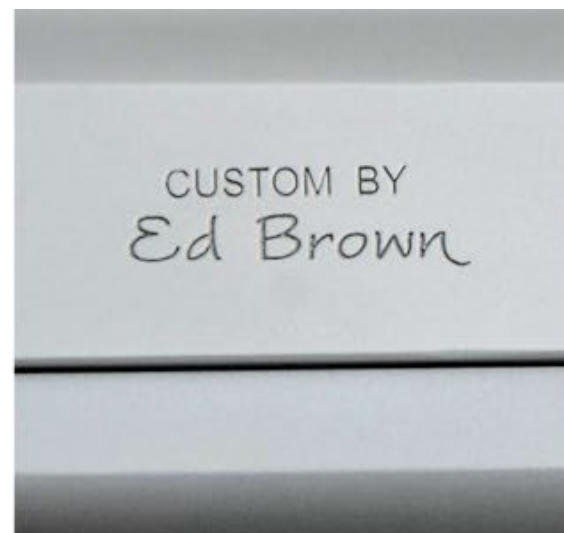
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ED BROWN SPECIAL FORCES ACCURACY & VELOCITY

AMMUNITION	VEL. (FPS)	E.S. (FPS)	25-YD. ACC. (IN.)
.45 ACP, 5.0-inch Barrel			
Hornady American Gunner 185-gr. XTP/HP	955	35	1.17
Remington Match 185-gr. MCWC	878	42	1.45
Black Hills 200-gr. SWC Lead	856	28	1.22
Federal Gold Medal Match 230-gr. FMJ	811	51	1.14
SIG SAUER Elite Performance 230-gr. FMJ	828	39	1.76
NOTES: Accuracy is the average of five, five-shot groups fired from a sandbag benchrest. Velocity is the average of 10 rounds measured 15 feet from the gun's muzzle.			



moved forward and chambered the empty case—repeatedly. Foiled again. The craftsmen at Ed Brown Products definitely know a thing or two about properly throating the barrel of a Model 1911 pistol.

Dot sights are great for their intended purpose, but to my eyes the sight picture leaves a lot to be desired for squeezing off the smallest groups possible from a rest. Despite that, I managed to keep 125 bullets inside 2.0 inches at 25 yards, with a couple of loads closely crowding a 1-inch average for five, five-shot groups. The smallest single groups fired were 0.57 inch with the Federal load and 0.62 inch with Black Hills. The majority of groups fired with Hornady ammo were also inside an inch. And for those who might feel uneasy about buying

a Model 1911 pistol in .45 ACP with a windage-adjustable-only rear sight, at 25 yards it was dead on the money with the Hornady, Black Hills, and Remington ammo and only about an inch low with the two 230-grain loads.

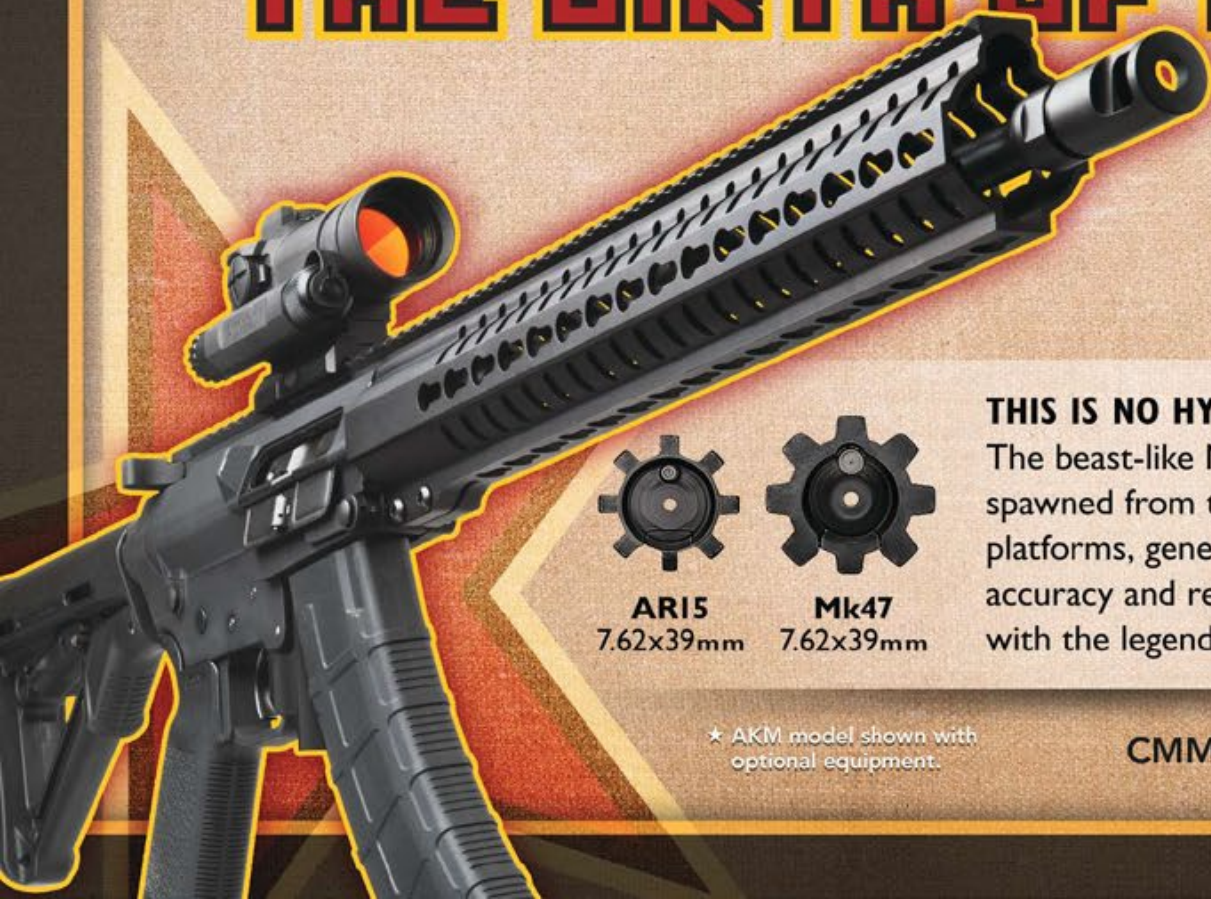
Each Ed Brown Model 1911 comes in a padded Cordura case with internal pockets for stowing magazines and various accessories. Also included are two magazines, a bushing wrench, a sight-adjustment wrench, a cable lock, Firearm Lubricant No. 960, and an owner's manual. All extra magazines included with an order are used during test-firing. Prior to shipment, all Ed Brown pistols are fired extensively for functioning and accuracy, and it certainly showed during my lengthy shooting session.

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6.5x55mm Swedish Mauser

YEAR OF INTRODUCTION: 1894

ORIGIN: Sweden/Norway

RIM DIAMETER: .479 in.

SHOULDER ANGLE: 25°

SHOULDER DIAMETER: .435 in.

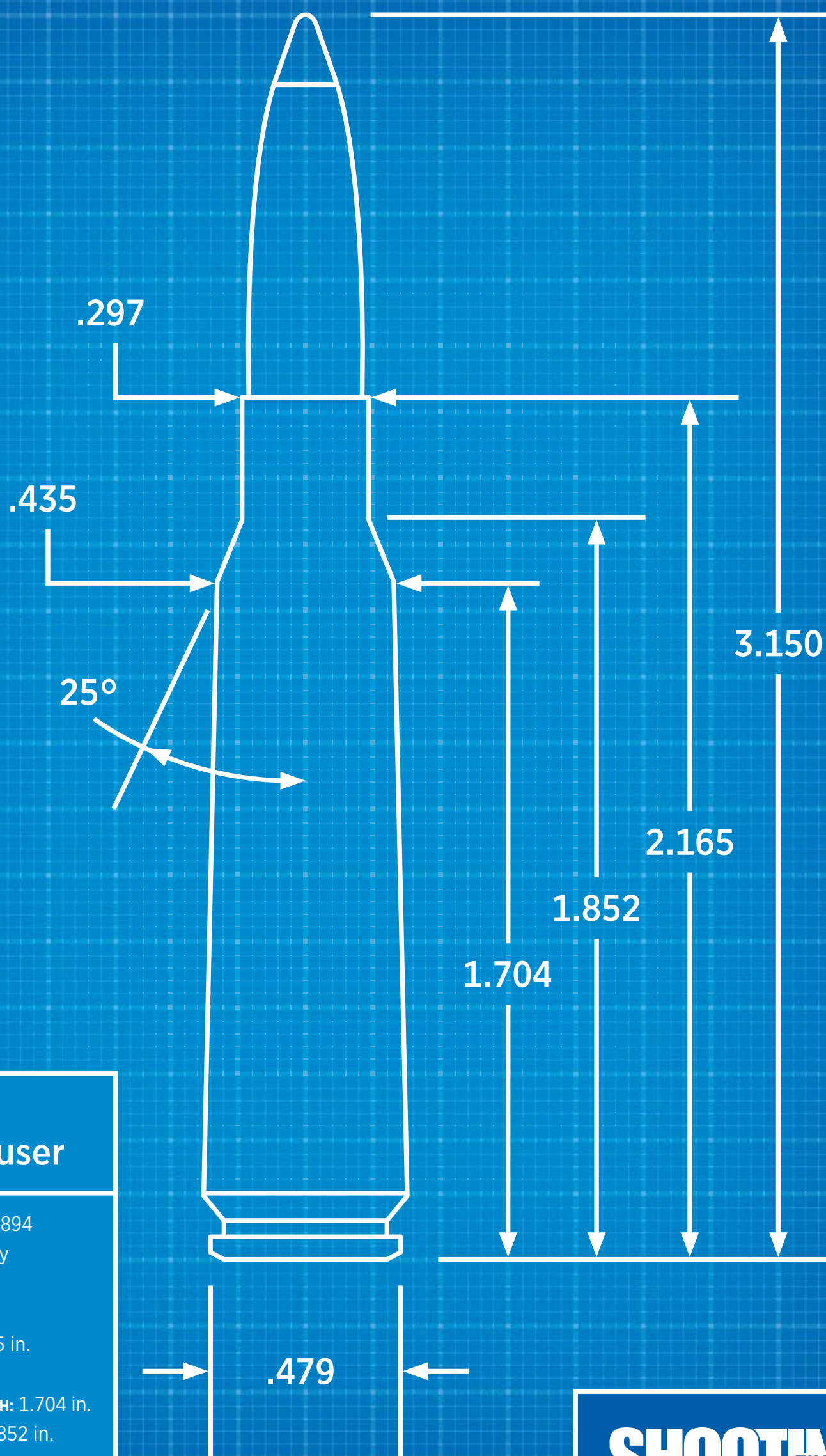
NECK DIAMETER: .297 in.

BASE-TO-SHOULDER LENGTH: 1.704 in.

BASE-TO-NECK LENGTH: 1.852 in.

CASE LENGTH: 2.165 in.

OVERALL LENGTH: 3.150 in.



SHOOTING TIMES

BY STEVE GASH

A METRIC MARVEL

DESIGNED FOR WAR 121 YEARS AGO, TODAY THE 6.5X55MM SWEDISH MAUSER'S ROLE IS HUNTING, AND THAT'S WHERE IT REALLY SHINES.

NOT MANY METRIC CARTRIDGES HAVE achieved great popularity in the United States, despite the ballistic virtues of many of them. The 6.5x55mm Swedish Mauser has, however, gained considerable following stateside, with good reason. It offers a host of attributes that make it an ideal round for many hunting situations. In Sweden and Norway, it is immensely popular for reindeer and moose, in Africa for plains game, and stateside it has accounted for countless deer- and elk-sized critters. Not many would take it to a prairie dog town or use it on large bears, but for most everything in between, it does just fine.

The history of the 6.5x55mm Swedish Mauser is interesting. It was developed jointly in 1891 by Sweden and Norway and adopted as the official military cartridge of those nations in 1894. The Norwegians used it in the Krag-Jorgensen rifle and the Madsen machinegun. The Swedes used Mausers, including the Models 94, 96, 35, and 31, as well as the Ah m/42 semiautomatic rifle. Ammunition from both countries was initially

identical, but Sweden later changed the case dimensions slightly and loaded it to a higher pressure for use in their Mauser rifles. This situation persisted until 1990, when Denmark, Norway, and Sweden standardized specifications, and the cartridge was officially renamed the "6.5x55 SCAN." (This is not to be confused with the "6.5x55 SKAN," an obscure cartridge with a very slightly longer case; it won't chamber in standard 6.5x55 rifles.) The European C.I.P. designation is "6,5x55 SE," while in the U.S., just about everyone calls it the 6.5x55 Swede.

Pressure limits for the 6.5x55mm Swedish have been a source of some confusion for American shooters for decades. Popular wisdom has it that the Mauser 94s and 96s are "significantly weaker" and must not be used with the heavier loads intended for "modern" bolt actions, such as the Mauser M98 and American-made Winchesters, Remingtons, and Rugers.

Be that as it may, in Europe, the round is certified by C.I.P. at a maximum pressure of 55,114 psi, with proof loads listed at 125 percent of that, or 68,893 psi. All Swedish Mausers are proof tested (with one round) at 65,992 psi, and Swedish military ammunition was loaded to a modest 46,412 psi.

In the U.S., S.A.A.M.I. maximum pressure is listed as 51,000 psi, so all U.S. ammunition is completely safe in the Krag and M94 and 96 Mauser rifles, but it's seriously underpowered in modern sporters. Handloaders for these rifles can improve ballistics considerably (more on that later).



The 6.5x55mm Swedish was developed jointly in 1891 by Sweden and Norway and was adopted as the official military cartridge of those nations in 1894. Initially, it was loaded with a 156-grain bullet.



One outstanding attribute of 6.5mm cartridges is that they shoot long-for-caliber bullets. This is known in the trade as high sectional density. Such long, skinny bullets penetrate like the dickens, and rather straightly at that, so they end up where they're supposed to go: in the vitals. Couple that with a good controlled-expansion bullet, and the hunter has a recipe for success.

Nowadays, modern rifles chambered for the 6.5x55mm Swedish are relatively abundant. The Winchester Model 70 Featherweight, Ruger Model 77, and Remington Model 700 have recently been chambered for this fine old round, along with numerous imports like the excellent CZ Model 550 and Sako and Tikka bolt guns.

The rifle I used for this report is a limited-edition Remington Model 700 Classic that was produced in 1994. It has a 22-inch barrel with a 1:8 twist. The scope used for all my shooting results is a Meopta 3-9X 42mm.

Factory loads with the now-standard 140-grain bullets produced dismal accuracy in my rifle. However, I just knew I could get the rifle to shoot better with handloads.

Handloading Notes

A couple of quirks need to be considered when handloading the 6.5x55mm Swedish. First is pressure limits, which I addressed earlier. The dogmatic recommendation in most manuals to use milder loads in the Krag and Mauser 94 and 96 rifles to be on the safe side just makes sense. Although Hornady used a Mauser M96 to develop its data, the manual states that maximum loads should be approached with care and cautions reloaders against "attempting high intensity loads in either the Mauser or Krag actions."

One good attribute of the 6.5x55mm Swedish Mauser is its ability to shoot long-for-caliber bullets. The author fired bullets ranging from 120 to 160 grains for this report.

Speer takes a different approach. In *Reloading Manual #14*, Speer has two sets of 6.5x55mm Swedish data. One is labeled for "Military Actions," the other for "Strong Commercial Actions" that "approach pressures of 58,000 psi." This is in the same class as "6.5x55 ammunition loaded in Europe."

The second consideration is cartridge length. Recall that the original military ammo was loaded with long 156-grain bullets, so the chamber throats were correspondingly long to accommodate them. Since there are thousands of military rifles and a lot of surplus ammo out there, companies throat modern rifles the same old way. This is fine and dandy when shooting long, heavy bullets, but not ideal when shooting lighter, shorter bullets.

When loaded to the lengths specified in the loading manuals, lighter bullets careen down that long throat until they hit the rifling. This does not help accuracy. Most all modern-day rifles chambered for the 6.5x55mm Swedish are made on what are called "long actions" (i.e., .30-06 length), and they have a correspondingly long magazine. Therefore, it is no problem to seat bullets out closer to the rifling. Keep in mind, however, that doing so will increase pressures slightly over the same load with the bullet seated deeper. Benchrest shooters routinely seat bullets to just touch the rifling or maybe 0.010 inch off, as this usually gives the best accuracy. This approach is easy with the long magazines on modern-day 6.5x55mm Swedish rifles.



When handloading the 6.5x55mm Swedish, accuracy often can be improved by varying the bullet-seating depth and, consequently, the cartridge's overall length.

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A METRIC MARVEL



The author's shooting results confirm that two powders are ideal for handloading the 6.5x55mm Swedish: Hodgdon Hybrid 100V and IMR 4831.



As with any rimless case, one needs to use care in setting the sizing die so as not to push the shoulder back too much.

First, determine the length of a cartridge if the bullet was seated out to touch the lands. There are fancy tools for this, but I use a cleaning rod and a pencil. Call this the "0 COL" length. Subtract 0.010 inch from that, make up a dummy round to that length, and try it in the gun. It should chamber easily with no rifling marks on the bullet when ejected. Then work up loads normally from the starting charges, checking for pressure signs. Watch your chronograph for unusually high velocities; this is a good indirect indication of high pressure.

I first tried the shorter lengths, but accuracy was pretty sad. My Remington Model 700 has the typical very long throat, so I tried seating the bullets out to miss the lands by 0.010 inch, and accuracy after that was outstanding. Only the 156- and 160-grain bullets were seated deeper.

As with any rimless case, one needs to use care in setting the sizing die so as not to push the shoulder back too much. From 0.002 to 0.003 inch is plenty, resulting in a slight "crush fit" when you close the bolt is perfect. This will help prevent incipient case head separations.

The 6.5x55mm Swedish case is slightly different from the almost-universal .30-06 family. The rim is 0.007 inch larger in diameter than the .30-06's, and it's slightly thicker (0.059 inch versus 0.049 inch), so a different shellholder is required. The 6.5x55mm Swedish's relatively small case calls for standard Large Rifle primers.



I tried 38 different loads, but the 25 shown in the chart were selected on the basis of accuracy, velocity, and ballistic uniformity. With the current renewed interest in 6.5mm cartridges, there is a great selection of bullets from which to choose. I concentrated on bullets weighing from 120 to 140 grains along with a couple of the traditional 156- and 160-grain bullets.

I quickly learned that two powders are optimal for the 6.5x55mm Swedish. Either Hybrid 100V or IMR 4831 will do about anything you need to do with the cartridge, and if I had to pick one, it would be Hybrid 100V in a walk. It delivered high velocities and great accuracy with all bullets tested with it. Take a peek at the chart. The short

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answer is to use 45.5 grains with 120-, 125-, and 129-grain bullets and 43.5 to 44.5 grains with 140-grainers.

Hornady roundnose bullets exude a smug air of authority in all calibers, and the 160-grain 6.5mm version closely mimics the 6.5x55mm Swedish’s original military round. This long bullet doesn’t lend itself to seating 0.010 inch off the lands, however, so I just seated it to the cannelure. Over 48.0 grains of H4831SC, groups averaged 0.83 inch at 2,471 fps, with a standard deviation (S.D.) of only 7. IMR 7828SSC also did well with this bullet. While some may whine about its “poor ballistic shape,” the fact is it is accurate and deadly and, with a sectional density of .328, will penetrate like crazy.

Another modern heavyweight for the 6.5x55mm Swedish is the Norma 156-grain Oryx Bonded bullet. It performed very well with the same charge of H4831SC, averaging 2,533 fps and 1.07 inches for accuracy.

Field Trial

It may have been designed for war, but these days the role of the 6.5x55mm Swedish Mauser is hunting. I had an exotics hunt in Texas scheduled for last December and was so pleased with the range performance of the 6.5x55mm Swedish that I took it south. I was after a fallow buck, and my guide said there were some “nice” ones and some “exceptional” bucks on the ranch. I saw one buck early the second morning, but the guide described it as “nice” but “too small.” Heck, he looked great to me, but I held my fire. By the evening of the last day of the hunt, I was kicking myself for not taking that buck. The vision of going home empty-handed loomed.

Then, promptly at 4:30, as if on cue, from my left a large deer with palmate antlers raced into the clearing I was watching and skidded to a stop. It was a fallow deer, with a beautiful chocolate coat and nice antlers. It didn’t take me long to unlimber my

6.5X55MM SWEDISH MAUSER HANDLOADS							
BULLET	POWDER		C.O.L. (IN.)	VEL. (FPS)	S.D. (FPS)	MUZZLE ENERGY (FT-LBS)	100-YD. ACC. (IN.)
	(TYPE)	(GRS.)					
Remington Model 700 Classic, 22-in. Barrel							
Hornady 120-gr. GMX	Hybrid 100V	45.5	3.134	2802	17	2093	1.07
Hornady 120-gr. GMX	H4831SC	48.5	2.950	2573	7	1764	1.36
Hornady 120-gr. GMX	Reloder 17	43.0	2.950	2539	15	1718	0.96
Nosler 125-gr. Partition	Hybrid 100V	45.5	2.950	2771	23	2132	1.42
Nosler 125-gr. Partition	IMR 4831	47.0	3.095	2690	8	2009	0.90
Hornady 129-gr. SST	Hybrid 100V	44.5	3.143	2661	46	2029	1.60
Hornady 129-gr. SST	Hybrid 100V	45.5	3.143	2746	25	2177	1.13
Hornady 129-gr. SST	IMR 4831	46.3	3.143	2624	20	1973	0.35
Hornady 129-gr. SST	IMR 4831	47.0	3.143	2666	8	2036	0.71
Nosler 129-gr. AccuBond LR	IMR 4831	46.0	3.195	2593	6	1926	1.06
Nosler 129-gr. AccuBond LR	IMR 4831	47.0	2.950	2651	15	2014	0.75
Hornady 140-gr. InterLock SP	Hybrid 100V	44.5	2.947	2669	9	2215	0.94
Hornady 140-gr. InterLock SP	H4831SC	46.0	2.947	2364	3	1738	0.91
Hornady 140-gr. InterLock SP	IMR 7828SSC	47.2	2.947	2410	9	1806	0.63
Hornady 140-gr. SST*	Hybrid 100V	44.5	2.950	2736	16	2328	2.02
Hornady 140-gr. SST	Hybrid 100V	44.5	3.143	2646	15	2177	0.83
Nosler 140-gr. AccuBond	IMR 4831	46.3	2.950	2580	15	2070	0.64
Nosler 140-gr. Partition	Hybrid 100V	43.5	3.095	2643	4	2172	1.22
Sierra 140-gr. SBT	IMR 4831	46.3	2.950	2581	10	2071	0.86
Sierra 140-gr. SBT	IMR 4831	46.3	3.069	2617	28	2130	0.71
Norma 156-gr. Oryx Bonded	H4831SC	48.0	2.950	2533	9	2223	1.07
Hornady 160-gr. InterLock RN	H4831SC	46.0	2.995	2375	13	2004	0.67
Hornady 160-gr. InterLock RN	H4831SC	48.0	2.995	2471	7	2170	0.83
Hornady 160-gr. InterLock RN	IMR 7828SSC	45.0	2.995	2331	18	1931	0.63
Hornady 160-gr. InterLock RN	IMR 7828SSC	47.0	2.995	2402	9	2072	0.75
*CCI 250 primer							
NOTES: Accuracy is the average of three, five-shot groups fired from a Caldwell Lead Sled. Velocity is the average of 10 rounds measured 12 feet from the gun's muzzle. All loads used Hornady brass and Federal 210 primers except where noted. All load data should be used with caution. Always start with reduced loads first and make sure they are safe in each of your guns before proceeding to the high test loads listed. Since <i>Shooting Times</i> has no control over your choice of components, guns, or actual loadings, neither <i>Shooting Times</i> nor the various firearms and components manufacturers assume any responsibility for the use of this data.							



Model 700 and place a Hornady 129-grain SST in his shoulder. He collapsed immediately and never moved. It was the “nice” buck I had seen before, but I am quite proud of him. He is a beautiful representative of the species and will always be a good memory of a fine hunt. And the venison was delicious.

The 6.5x55mm Swedish has domesticated nicely and delivers impressive performance on the range and in the field. With today’s modern rifles stoked with factory loads or carefully tailored handloads, the hunter is well equipped for just about any game.

ST



Although the 6.5x55mm Swedish was originally developed for war, today it shines in the hunting fields.


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PARADIGM SHIFT

POLYCASE AMMUNITION'S CUTTING-EDGE, INJECTION-MOLDED, PROPRIETARY-COMPOSITION ARX BULLETS WILL HAVE YOU RETHINKING HOW A PERSONAL-DEFENSE BULLET IS SUPPOSED TO PERFORM.

BY LANE PEARCE

ADVANCED ROTATION EXTREME: THAT'S WHAT ARX stands for. These innovative bullets have less carry weight, higher velocity, flatter trajectory, less recoil, and less potential for ricochets. The bullets help eliminate corrosion, and they are competitively priced. Because they are engineered primarily for personal protection, terminal ballistic performance is highly effective and consistently predictable. More about the performance in a few minutes.

While listening to detailed technical presentations at PolyCase Ammunition in Savannah, Georgia, and participating in extensive shooting sessions, I was extremely impressed with the technology involved with producing these unique bullets. But I came to realize there was a problem. The problem wasn't with the bullet's unique design, composition, or performance. The problem was I didn't know how I was going to convey just how well it works.



The “before” and “after” photos of conventional jacketed hollowpoint bullets compared to ARX bullets clearly demonstrated my dilemma. Other than the rifling striations, there's no indication the ARX has done anything. In fact, recovered ARX bullets show that the design does not expand. It penetrates all soft material and tissue like any conventional FMJ bullet. But seeing the dramatic results when an ARX bullet strikes a gelatin block, a melon, and a jug of water forced me to rethink everything I thought I knew about how a personal-defense bullet is supposed to perform.

PolyCase Ammunition is a recent startup in the civilian munitions market. Headed up by retired Army Ranger Lt. Col. Paul Lemke and Juan Carlos Marin, its first product was “single-use” .380 ACP ammo that used injection-molded plastic cases topped with conventional cup-and-core JHP bullets. A few months after launching that ammunition, the company came up with its idea of making composite copper-polymer (Cu/P) bullets.

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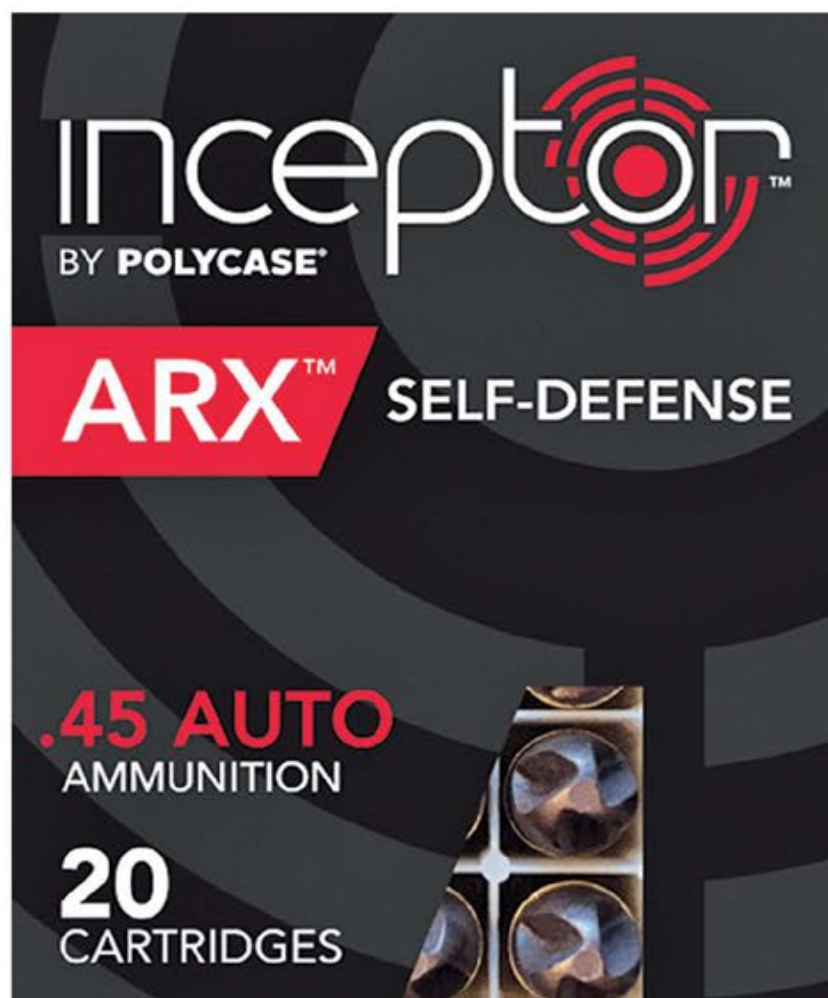
The firm experimented with various formulae until a proprietary mixture of copper powder metal, glass-fiber reinforced nylon made by PolyOne, and other unnamed contents was finalized.

The firm experimented with various formulae until a proprietary mixture of copper powder metal, glass-fiber reinforced nylon made by PolyOne, and other unnamed contents was finalized. In addition to the usual roundnose bullets, PolyCase engineers, along with Steve Johnson, who is formerly of Hornady, developed the unique ARX design that has three flutes. I think of them as power vanes.

The Cu/P ARX bullets are approximately 35 percent lighter in weight than typical jacketed lead-core bullets, so they can be fired at higher velocities. Kinetic energy sacrificed by the reduced bullet weight is almost fully reclaimed by the enhanced velocity. Another important plus is that a Cu/P round generates appreciably less recoil, meaning it's easier on the gun and the shooter.

Cu/P bullets are not frangible; however, unlike a malleable lead-core bullet, they readily break up when they strike a hard surface; consequently, they don't ricochet back at the shooter. And because there's no lead, they're "friendlier" to the environment.

They are formed through a precision injection-molding process that involves an 80-ton press assembly dropping a charge of predried granules from a gravity-fed hopper and stroking a piston to force the material mixture into a precision-machined, water-cooled mold. The end product is a copper-polymer matrix "tree" comprising a stem and four branches with four fully formed projectiles attached to the end of each branch.



As these recovered bullets show, PolyCase's unique injection-molded, proprietary-composition ARX bullets do not expand when fired into ballistic gelatin.



.380 ACP



9MM



.45 ACP

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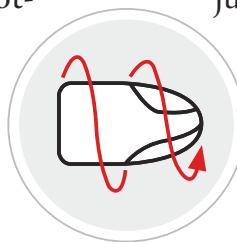
The 74-grain 9mm ARX penetrated 12 to 14 inches in gelatin and created a wound cavity of 3 inches.

The “tree” with 16 still-warm composite bullets attached falls onto a conveyor belt, and an operator removes the stems and branches from the collection container and boxes the bullets for transfer to the ammunition-loading facility. Almost all of the “scrap” is reprocessed and mixed with virgin Cu/P material to press into more bullets.

The fully automated process is closely monitored by multiple sensors that record pressure levels and mold sequencing. Any deviation from preset limits causes an immediate shut-down, and the problem is identified and resolved before production resumes. Sample bullets are routinely spot-checked to ensure the strict quality requirements are met and maintained.

How the ARX Works

As I said earlier, the ARX bullet does not expand because it’s designed to rotate through tissue and cause devastating shock through fluid dynamics and lateral force. Operating like a hydrodynamic ram, the bullet compresses the fluid-filled tissue ahead of it and creates a temporary cavity as it dumps rotational energy into the tissue. The bullet’s flutes cause the fluid in the target’s tissue to be accelerated and displaced, causing the wound cavity to increase. As the fluid’s velocity across the bullet’s flutes increases, shock waves are produced. There is an illustration of how this unique bullet works on PolyCase’s website, and it helps explain the ARX’s effect on the fluid-filled tissue.



During my visit to the PolyCase facilities, we fired hundreds of rounds downrange at paper targets, steel targets, and other targets of opportunity, including melons, oranges, and water jugs, and we also shot 9mm and .45 ACP ARX bullets into gelatin blocks with and without denim/leather barriers at a range of 10 feet. The 9mm bullets (at 1,400 fps) penetrated 12 to 14 inches and caused an initial cavity of up to 3 inches. The .45 ACP bullets (at 1,150 fps) penetrated several inches more and created an even larger cavity. By the way, the ARX fed just like a roundnose bullet; the flutes had no negative effect on feeding whatsoever.

One round of .45 ACP ARX was fired at soft body armor backed by gelatin. It penetrated the first layer of Kevlar and then the nose flutes shattered. The bullet shank remained intact but was fractured into three, roughly equal segments. It was obvious that if a human had been wearing the body armor, he would have been subjected to significant blunt force trauma.

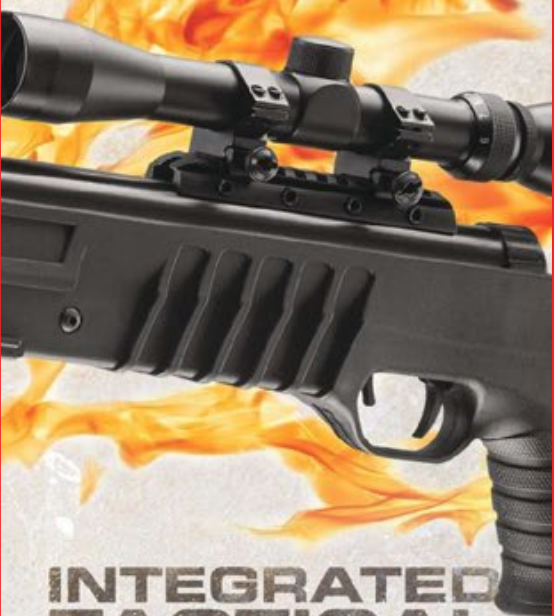
I haven’t seen what the ARX does to a human, but I have seen what it did to a large hog. Both eyes were pushed out, and the head was drastically flattened. The results were devastating.



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PARADIGM SHIFT

One round of .45 ACP ARX was fired at soft body armor backed by gelatin. It penetrated the first layer of Kevlar and then the nose flutes shattered. The bullet shank remained intact but was fractured into three, roughly equal segments.

Range Results

Returning home, I outlined a test plan to demonstrate the PolyCase ammunition's performance at my local range. I decided to fire multiple 10-shot groups of .380 ACP, 9mm, and .45 ACP PolyCase Inceptor ammunition and other brands of ammo and tabulate the velocity and accuracy results. I would also include calculated values of the muzzle energy and "free recoil" energy.

I tested the 9mm and .45 ACP factory loads in both compact and full-size pistols. The recoil energy formula, taken from Lyman's reloading manual, requires using the propellant charge weight in the calculations. I reviewed the Lyman manual to estimate an average value for the jacketed-bullet factory loads, and I used actual charge weights for the various PolyCase rounds.

As you can see, velocities for the PolyCase were substantially greater than the conventional factory loads. I expected that. In most cases, the muzzle energies were higher, and the accuracy results were comparable.

In my opinion, the main point of interest is the recoil figures. As the chart indicates, each gun's kick was 25 percent to 35 percent less with the PolyCase ammo. I could definitely feel the difference when doing the shooting. Taming recoil without sacrificing ballistic performance will be welcomed by shooters using compact, lightweight handguns.



When fired at body armor, the 114-grain .45 ARX's flutes shattered and the base fractured into three pieces, but it would have caused considerable blunt force trauma.

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So, to review, the PolyCase ammunition loaded with ARX bullets has less carry weight, higher velocity, higher energy (in most instances), and less recoil. Its terminal ballistics are incredibly effective. It's available through suppliers like Cabela's at a list price of \$24 per box of 20 rounds, so it is competitively priced. All of that means that my testing of the ammo proves that PolyCase's claims are accurate. ARX bullets are currently available in PolyCase's brass-case Inceptor line of ammo in .380 ACP, 9mm Luger, .40 S&W, and .45 ACP; .38 Special and .357 Sig are said to be coming very soon.

ST

POLYCASE ARX BALLISTICS

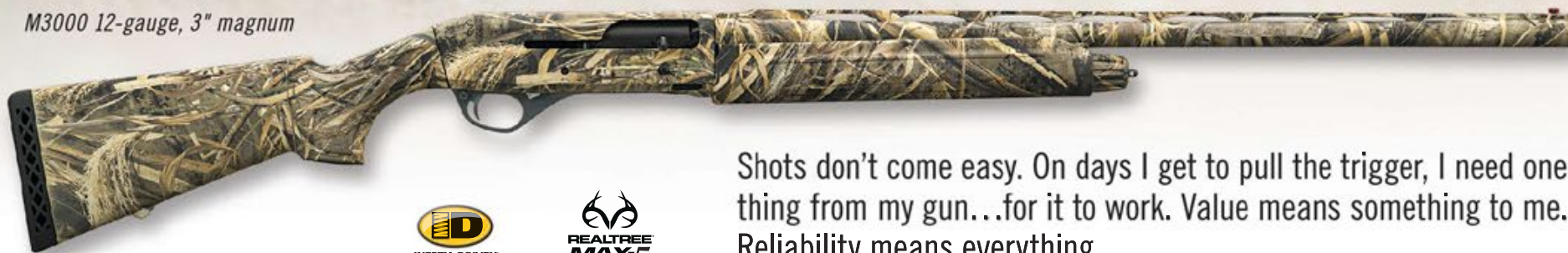
AMMUNITION	VEL. (FPS)	MUZZLE ENERGY (FT-LBS)	RECOIL (FT-LBS)	12-YD. ACC. (IN.)
.380 ACP Ruger LC380, 3.12-in. Barrel				
PolyCase Inceptor 56-gr. ARX	1177	172	1.8	2.25
Black Hills 90-gr. JHP	935	175	2.7	2.35
SIG SAUER 100-gr. FMJ	872	169	2.7	2.50
.380 ACP Glock 42, 3.25-in. Barrel				
PolyCase Inceptor 56-gr. ARX	1174	171	2.1	1.90
Black Hills 90-gr. JHP	887	157	2.9	2.38
SIG SAUER 100-gr. FMJ	846	159	3.1	2.25
9mm Ruger LC9s, 3.12-in. Barrel				
PolyCase Inceptor 74-gr. ARX	1454	348	4.6	2.10
SIG SAUER 115-gr. FMJ	1084	300	5.8	1.12
Black Hills 124-gr. JHP +P	1126	349	6.6	3.00
9mm Glock 43, 3.4-in. Barrel				
PolyCase Inceptor 74-gr. ARX	1502	371	5.0	1.50
SIG SAUER 115-gr. FMJ	1123	322	6.3	2.25
Black Hills 124-gr. JHP +P	1145	361	6.9	2.00
9mm CZ 75, 4.6-in. Barrel				
PolyCase Inceptor 74-gr. ARX	1520	380	2.8	1.68
SIG SAUER 115-gr. FMJ	1234	389	4.0	1.12
Black Hills 124-gr. JHP +P	1255	434	4.5	2.38
.45 ACP S&W Shorty 45, 3.75-in. Barrel				
PolyCase Inceptor 114-gr. ARX	1157	339	4.5	2.75
Black Hills 185-gr. JHP	922	349	6.8	2.00
Black Hills 230-gr. FMJ	775	307	7.0	3.25
SIG SAUER 230-gr. FMJ	799	326	7.4	2.50
.45 ACP Glock 36, 3.8-in. Barrel				
PolyCase Inceptor 114-gr. ARX	1143	331	4.4	1.60
Black Hills 185-gr. JHP	914	343	6.7	2.40
Black Hills 230-gr. FMJ	767	301	6.9	2.70
SIG SAUER 230-gr. FMJ	800	327	7.4	1.75
.45 ACP SIG P220, 4.4-in. Barrel				
PolyCase Inceptor 114-gr. ARX	1184	355	4.1	2.30
Black Hills 185-gr. JHP	954	374	6.4	1.20
Black Hills 230-gr. FMJ	785	315	6.4	2.60
SIG SAUER 230-gr. FMJ	807	333	6.7	1.50
NOTES: Accuracy is for a single 10-round group fired from a sandbag benchrest. Velocity is the average of 10 rounds measured six feet from the guns' muzzles.				

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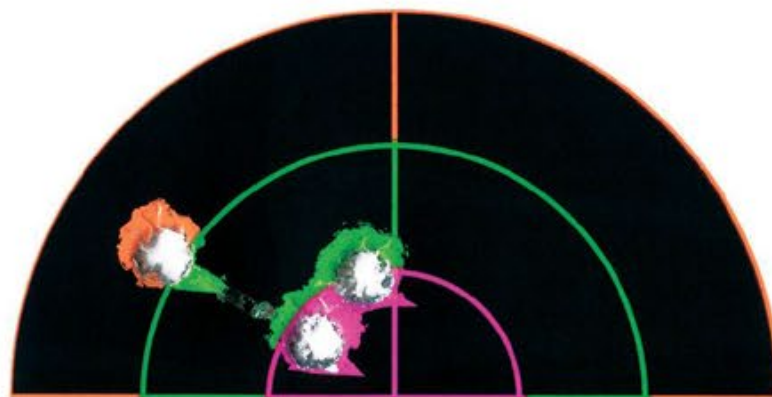
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THE DEBATE ABOUT THE .243 WINCHESTER'S EFFECTIVENESS ON BIG GAME RAGES ON, BUT THANKS TO GOOD RIFLES LIKE THE TIKKA T3 LITE STAINLESS, THE SHORT-ACTION .24-CALIBER CARTRIDGE CAN DRIVE TACKS. **BY JAKE EDMONDSON**

MY FRIEND DAVID FAUBION, WHO HAPPENS to be the managing editor of Outdoor Sportsman Group's special interest publications, says the .243 Winchester is "disproportionately deadly." So I borrowed that phrase for the headline of this article.

Faubion says the debate about the .243 Win.'s effectiveness on medium to large deer generally rages between those who have used it effectively and those who have witnessed poorly placed shots that resulted in wounded game. Faubion is a true fan of the .243. Me, I'm on the fence. However, I know other seasoned hunters who use the .243 Win. exclusively for everything from pronghorn antelope to large mule deer.

With a loaded magazine and a Burris 3-9X 40mm Fullfield II scope mounted with alloy rings, the .243 Winchester Tikka T3 Lite Stainless rifle weighs 7 pounds, 4.8 ounces.



When I ask them why they love the round so much, they say, without a hint of hesitation, because they shoot it so well. Time after time they have placed high-tech bullets out of the .243 Win. cartridge exactly where they needed to go. I can agree with them on that. I've owned a Kimber 84M in .243 for several years, and it literally can drive tacks. The Tikka T3 Lite Stainless featured here is also capable of outstanding accuracy.

Tikka T3 Lite Stainless

The Tikka T3 Lite Stainless chambered in .243 Win. weighs 6 pounds, 3.8 ounces, unloaded and without a scope. With a loaded magazine and the Burris 3-9X 40mm Fullfield II scope I installed on it with alloy rings that came with the rifle, the T3 Lite Stainless weighs 7 pounds, 4.8 ounces. It's a lightweight, nimble little rifle that is fast to the shoulder.

The rifle has a 22.4-inch, sporter-weight, stainless-steel barrel and a synthetic stock. The free-floated barrel is cold hammer forged, and in this case, being that it's chambered for .243 Win., the twist rate is 1:10. The muzzle is slightly recessed and precision crowned. The barrel's diameter at the muzzle is 0.63 inch, and it's 1.13 inches at the receiver.

DISPROPORTIONATELY DEADLY



T3 LITE STAINLESS	
MANUFACTURER	Sako Ltd. tikka.fi
TYPE	Bolt-action repeater
CALIBER	.243 Win. (as tested)
MAGAZINE CAPACITY	3 rounds
BARREL	22.4 in., 1:10 twist
OVERALL LENGTH	42.5 in.
WEIGHT, EMPTY	6 lbs., 3.8 oz.
STOCK	Black synthetic
LENGTH OF PULL	13.6 in.
FINISH	Matte stainless barreled action
SIGHTS	None; receiver is grooved and drilled and tapped for scope mounts
TRIGGER	3.0-lb. pull (as tested)
SAFETY	Two-position
MSRP	\$800

Tikka's T3 Lite Stainless weighs 6 pounds, 3.8 ounces without a scope and unloaded. It has a sporter-weight barrel and a lightweight synthetic stock.

The action is also stainless steel, and it has angled flats on the sides. The top is flat with seven longitudinal serrations. The receiver is drilled and tapped for scope mounts, and it also has a 17mm groove for clamp-on rings that were included with the rifle. There is a stud built into the underside of the front ring, and it fits into a corresponding hole that's milled into the top of the receiver.

The stainless-steel bolt has a smooth, svelte knob and dual locking lugs, a counterbored boltface, a Sako-style extractor, and a plunger-style ejector. The bolt handle is dovetailed into

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The stainless-steel bolt has dual locking lugs, a counterbored boltface, a Sako-style extractor, and a plunger-style ejector.

the bolt's body. The locking lugs run smoothly in raceways inside the receiver, and they rotate into battery in the forward receiver ring. A cocking indicator protrudes out from the bottom of the composite bolt shroud. When cocked, a red dot is clearly visible. The bolt release is located on the left side of the action; pushing it in allows the bolt to be removed. The bolt cannot be lifted or removed when the safety is engaged.

Speaking of the safety, it's located on the right side of the action, at the rear, and it has two positions. Rearward engages the safety, and forward allows the rifle to be fired. When in the "Fire" position, a red dot shows.

The 0.28-inch-wide, serrated trigger finger piece is alloy, and pull weight can be adjusted from 2 to 4 pounds. My rifle's trigger was set at the factory to break at 3 pounds, and it was very consistent. I measured it five times with an RCBS trigger pull gauge, and the variation was less than 2 ounces over those five pulls.

The polymer three-round, detachable box magazine fits snugly into the matte-finished bottom metal, and the magazine release lever is located ahead of the forward edge of the magazine. The magazine is 3.5 inches long overall, but it has an internal spacer built into the back to accommodate the 2.36-inch-long .243 Win. cartridge.

The stock is black synthetic, and it has textured gripping panels on the fore-end and the grip. The grip also has a slight palm swell. The stock comes with sling-swivel studs and a curved rubber butt pad that is 0.75 inch thick at the top and 1

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The receiver is grooved for clamp-on scope rings, and the front scope ring has a stud that fits into a hole milled into the receiver.

inch thick at the bottom. With the barreled action removed, the lightweight synthetic stock weighs 1.8 pounds.

Pros & Cons of the .243 Win.

The .243 Win. was developed in 1955 by necking down the .308 Winchester case to accept .24-caliber bullets. It was initially intended to be a combination deer/varmint cartridge, and it quickly became popular with riflemen.

Factory-loaded .243 Win. ammo pushes a 100-grain deer-hunting bullet up to about 3,000 fps and a 55-grain varmint bullet to over 3,600 fps. Other common bullet weights for the .243 Win. include 75, 80, 90, and 95 grains, so there's a wide variety available.

Those who champion the .243 Win. cite its low recoil and its inherent accuracy as great benefits. Those who don't like the .243 Win. say it's not enough cartridge for deer, and it has too much recoil for varmint shooting.

Typical recoil for a 55-grain varmint loading of the .243 Win. is about 6 ft-lbs. Compared to the .223 Remington with a 55-grain bullet in a same-weight rifle, the .243 Win. has twice the recoil. Muzzle energy for the .243 Win. with a 100-grain deer-hunting bullet is about 2,000 ft-lbs. Compared to the classic .308 Win. 150-grain deer load, which generates 2,650 ft-lbs of muzzle energy, the .243 Win. has about 75 percent as much energy. On top of that, field tests have shown that the .243 Win. loses a lot of energy very quickly beyond 200 yards.

A lot of the criticism of the .243 Win. as a deer-hunting cartridge has come

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The bolt's handle is dovetailed into the body, and a cocking indicator protrudes out from under the composite bolt shroud. The composite detachable magazine holds three rounds of .243 Winchester ammo.

from hunters who used too light of a bullet or a bullet of inadequate design. They often used bullets in the 75- to 90-grain range, and most of the complaints came from a time long before today's high-tech bullets were available.

Another chief reason for the .243 Win. failing to do an adequate job on deer-size game historically has been that hunters tried to stretch it beyond its capabilities. As I said just a few

moments ago, at about the 200-yard mark, energy drops off rapidly. Additionally, according to hunters who have had great success with the .243 Win. on deer-size game, the cartridge is not as forgiving as some larger calibers if a shot hits a bit too far back or if an angling shot is necessary to take a big buck. However, they attest that if the bullet is well placed, it does the job cleanly.

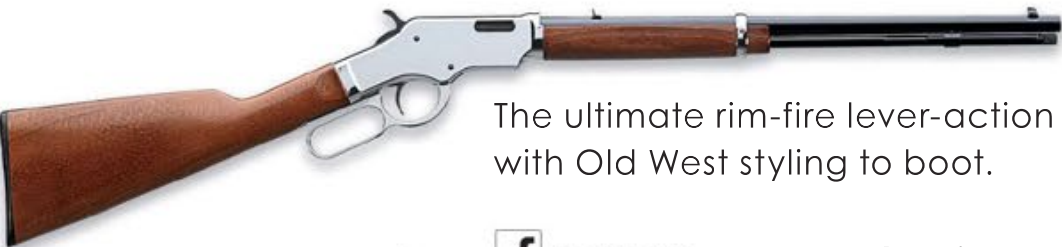


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The best description I have heard for the .243 Win. is this: There may be better cartridges for deer or better ones for varmints, but none is better for both.

Range Results

I broke with *Shooting Times's* standard accuracy-testing protocol of shooting five, five-shot groups with each load for the Tikka T3 Lite Stainless because of the rifle's thin barrel.

The author fired 15 different factory loads at 100 yards, and three, three-shot groups with each load produced an overall average accuracy of 1.01 inches.

Instead, I fired three fairly rapid three-shot groups with each load, allowing the barrel to cool down between each group. Because I used 15 different factory loads, the shooting took the better part of a day at the range.

While doing all that shooting, I was impressed by how smoothly the Tikka magazine fed the rounds. I also appreciated how smooth the bolt operation was. Extraction and ejection of empties was also smooth. All in all, I didn't have a single hiccup or hangup.

Working with lightweight rifles over the years has left me with this conclusion: Usually, the accuracy spread between loadings is often a couple of inches or more. I was surprised that that was not the case with the T3 Lite Stainless. My best average measured 0.59 inch, and it came with Federal's 100-grain Partition load. My largest average was 1.61 inches; it

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T3 LITE STAINLESS ACCURACY

AMMUNITION	VEL. (FPS)	E.S. (FPS)	S.D. (FPS)	100-YD. ACC. (IN.)
.243 Winchester, 22.4-in. Barrel				
Federal 55-gr. Ballistic Tip	3613	30	14	0.74
Hornady 58-gr. V-Max	3360	38	19	0.79
Hornady 75-gr. HP	3058	59	24	1.14
Federal 80-gr. SP	3119	63	29	1.25
Winchester 80-gr. PSP	3270	66	32	0.63
Remington 90-gr. Scirocco	2853	31	13	1.21
Federal 95-gr. Fusion	2815	57	26	1.09
Remington 95-gr. AccuTip	2984	63	29	1.30
Winchester 95-gr. Ballistic Silvertip	2931	45	18	0.99
Federal 100-gr. Partition	2732	54	24	0.59
Hornady 100-gr. BTSP	2743	46	20	0.61
Remington 100-gr. Core-Lokt PSP	2847	61	25	1.00
Winchester 100-gr. BTSP	2734	49	22	1.61
Winchester 100-gr. Power Max PHP	2948	60	25	1.47
Winchester 100-gr. Power-Point	2805	53	24	0.73
NOTES: Accuracy is the average of three, three-shot groups fired from a sandbag benchrest. Velocity is the average of five rounds measured 12 feet from the gun's muzzle.				

came with Winchester's 100-grain BTSP ammo. That's an acceptable figure for a lightweight hunting rifle, and even with it, the difference between the smallest and the largest group averages was only 1.02 inches. I'll have to amend my earlier foregone conclusion about accuracy spreads.

The number one rule of good hunting is you have to put the bullet where it needs to go. Bullet placement is critical. The Tikka T3 Lite Stainless I fired for this report put bullets exactly where I intended them to go. You can argue the pros and cons of the .243 Win. on deer-size game until the cows come home, but you can't argue with the excellent accuracy this lightweight Tikka hunting rifle provides.

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Hatsan .35-Caliber Carnivore Air Rifle

BY JAKE EDMONDSON

SEVERAL MONTHS AGO *SHOOTING TIMES* EDITOR IN CHIEF JOEL HUTCHCROFT reported on Hatsan's .22-caliber precharged pneumatic QuietAir AT44-10 Long QE air rifle. Well, now it's my turn to get in on the fun, but I'm detailing Hatsan's new .35-caliber Carnivore air rifle.

Like the AT44-10 Long QE, the Carnivore, which is a member of the BT65 series, is a precharged pneumatic (PCP), side-cocking air rifle. That means it uses a cylinder of pressurized air to propel the pellet. In the case of the Carnivore, the air cylinder holds 255cc, and it features an easy-to-read pressure gauge on the end.

Also like the AT44-10, the Carnivore uses a rotary magazine, but in this case its capacity is six pellets. The company claims that the .35-caliber Carnivore is capable of producing a muzzle velocity of 730 fps. It's also offered in .30 caliber, which Hatsan says produces a muzzle velocity of 860 fps.

The Carnivore comes with a black synthetic Monte Carlo-style stock with an adjustable comb. Length of pull is adjustable via the curved, 1-inch-thick rubber buttpad, but at its shortest it measures 14 inches. The buttpad also can be adjusted for height and angle. The grip and fore-end have textured, soft rubber inserts. The underside of the fore-end

CARNIVORE

MANUFACTURER	Hatsan hatsan.com
TYPE	PCP air rifle
CALIBER	.35 (as tested)
CAPACITY	Six pellets
BARREL	29.5 in.
OVERALL LENGTH	49 in.
WEIGHT, EMPTY	9.4 lbs.
STOCK	Synthetic
LENGTH OF PULL	Adjustable
FINISH	Black
SIGHTS	None
TRIGGER	4.6-lb. pull (as tested)
SAFETY	Two position
MSRP	\$799

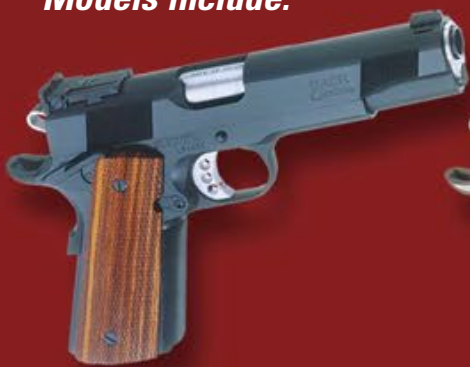
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HATSAN CARNIVORE



has a molded-in slotted accessories rail, and there are a sling-swivel stud and a swivel on the left-hand side of the fore-end. There are also a sling-swivel stud and a swivel in the buttstock.

The Turkish steel barrel is 29.5 inches long overall, and it incorporates a full-length sound suppressor shroud that flares out at the muzzle. Actual bore length is 24.5 inches; the last 5 inches are the unrifled sound moderator.

The rifle comes without sights, but it has a slotted, 11mm/22mm scope-mount rail on the receiver. I installed a Nikon 3-9X 40mm Prostaff Target EFR air rifle scope.

A two-position safety is located on the left side of the receiver, and the gold-plated two-stage trigger is adjustable for pull weight and travel. My rifle’s trigger pull measured 4 pounds, 10 ounces right out of the box according to my trigger-pull scale.

Overall length is 49 inches with the buttplate adjusted all the way in. Weight is 9.4 pounds, without the scope. And it comes with two rotary magazines and a sling.

I fired the Carnivore using JSB .35-caliber Match Diabolo pellets weighing 81.02 grains. The rifle drove those pellets at an average velocity of 716 fps measured 12 feet from the gun’s muzzle. The average accuracy at 50 yards was 0.96 inch for three, five-shot groups.

I borrowed Hutchcroft’s Pyle sound meter, and while I was gathering the velocity data, I also measured the five shots with the sound meter set 8 inches away from the gun’s muzzle. On average the gun/pellet combination produced

The two-stage “Quattro” trigger is adjustable for pull weight and over-travel. The test rifle’s trigger pull measured 4.6 pounds. The buttstock’s comb is adjustable for elevation, and the buttplate can be adjusted for length of pull, height, and angle.

57.6 dB. For comparison, typical .22 LR ammunition produces 120 to 130 dB.

The 255cc air cylinder should provide between 12 and 20 shots at full velocity. Based on the average velocity the Carnivore achieved, using an online muzzle energy calculator, the 81.02-grain .35-caliber pellet produces 92 ft-lbs of energy 12 feet from the muzzle. That’s a little less than half the muzzle energy of the .32 H&R Magnum cartridge loaded with an 85-grain bullet.

The six-shot Carnivore is quiet and accurate, and according to Hatsan, it’s powerful enough to use for hunting medium-size game.

ST



CARNIVORE ACCURACY, VELOCITY & NOISE				
PELLET	VEL. (FPS)	S.D. (FPS)	NOISE (DB)	50-YD. ACC. (IN.)
.35 Caliber				
JSB 81.02-gr. Match Diabolo	716	2	57.6	0.96
NOTES: Accuracy is the average of three, five-shot groups. Velocity is the average of five shots measured 12 feet from the gun’s muzzle. Noise decibel data is the average of five shots measured 8 inches from the muzzle.				

The .35-caliber Carnivore uses a six-shot rotary magazine and a 255cc air cylinder.



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Steiner T5Xi 3-15X 50mm

BY JAKE EDMONDSON

STEINER'S NEW T5Xi RIFLESCOPES WERE DESIGNED FOR TACTICAL AND competition shooting. In fact, according to Steiner Vice President of Sales, Marketing, and Business Development Tom Frane, the company involved top competition shooters and tactical instructors all the way from design to production.

The T5Xi family includes the compact 1-5X 24mm, the mid-range 3-15X 50mm (shown here), and the long-range 5-25X 56mm. Each was designed for a specific shooting situation.

T5Xi features include one-piece, oversized 30mm or 34mm tubes; five-times magnification zoom ranges; tapered magnification rings that are angled so power settings are visible while positioned behind the scope; low-profile knobs with audible click adjustments for windage, elevation, parallax, and reticle illumination; resettable turrets with hard stops at zero; Steiner's unique Never-Lost turret second rotation indicator in which the mil numbers on the scale change automatically after the first 120-click revolution to prevent the user from getting lost on the dial;

and locking diopter setscrews. These scopes are fog-proof, shockproof, and waterproof to depths of 33 feet.

The 3-15X 50mm shown here is 13.1 inches long and comes with a 34mm main tube and the patented Special Competition Reticle (SCR), which is located in the first focal plane. The reticle is powered by a CR2450 battery and features an extended illumination area, 2/10-mil windage hold-off lines, 1/2-mil holdover lines, and 1/10-mil ranging brackets for precise distance ranging. It's calibrated for both 5.56mm and 7.62mm ammunition. Field of view at 100 yards ranges from 7.3 feet (15X) to 36.0 feet (3X). Exit pupil is 12.0mm to 3.4mm. Weight is 29.8 ounces.

MSRP: \$2,069.99 (3-15X 50mm)
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T5Xi 3-15X 50MM

MANUFACTURER	Steiner steiner-optics.com
MAGNIFICATION	3-15X
OBJECTIVE LENS DIAMETER	50mm
TUBE DIAMETER	34mm
EYE RELIEF	3.5 to 4.3 in.
FIELD OF VIEW	36.0 to 7.3 ft. @ 100 yds.
ADJUSTMENT CLICKS	1cm (0.1 mrad)
ELEVATION ADJUSTMENT RANGE	34 mils @ 100m
WINDAGE ADJUSTMENT RANGE	15 mils @ 100m
LENGTH	13.1 in.
WEIGHT	29.8 oz.
FINISH	Matte black
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SIG SAUER Elite Performance

BY JOEL J. HUTCHCROFT

SIG SAUER IS BECOMING A ONE-STOP SHOP FOR guns, gear, optics, and ammunition. On the ammo side, SIG now offers Elite Performance ammunition in .380 Auto, .38 Special, 9mm Luger, .357 SIG, .357 Magnum, .38 Super, .40 S&W, .44 Special, .44 Magnum, .45 ACP, and 10mm Auto. The company also has two newly announced .300 Blackout Match rifle loadings.

The handgun ammunition is offered with either SIG's proprietary V-Crown JHP bullet or with an FMJ bullet. The V-Crown JHP bullet design has V-shaped jacket skives and a "toothed" cannelure located halfway up the bullet shank. The hollow-point bullet, referred to as a "stacked hollowpoint" by SIG, has a smaller additional hollowpoint cavity located behind the main cavity. The stacked hollowpoint and the bullet jacket skives provide controlled, uniform expansion, and the cannelure locks the jacket to the lead-alloy core. Cases for the V-Crown loadings are nickel-plated brass and are coated with Ducta-Bright 7A for superior lubricity, corrosion resistance, and feeding. The FMJ loadings feature durable copper bullet jackets, brass cases, and clean-burning powders.

I've fired the 10mm 180-grain FMJ ammo, the 165-grain V-Crown JHP .40 S&W ammo, and the 200-grain V-Crown JHP .45 ACP ammo in SIG SAUER Model 1911 and P220 pistols, and as you can see in the shooting results chart, they all did quite well for accuracy. Velocity extreme spreads and standard deviations were very consistent, too. In addition, all rounds fed and functioned with 100 percent reliability.

MSRP: \$18.96 to \$36.06

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ST

SIG ELITE PERFORMANCE ACCURACY & VELOCITY

AMMUNITION	VEL. (FPS)	E.S. (FPS)	S.D. (FPS)	25-YD. ACC. (IN.)
.40 S&W SIG 1911 Traditional Match Elite, 5-in. Barrel				
SIG SAUER 165-gr. V-Crown JHP	1104	19	8	1.92
10mm SIG P220 Match Elite Two-Tone, 5-in. Barrel				
SIG SAUER 180-gr. FMJ	1207	25	12	1.99
.45 ACP SIG 1911 Super Target, 5-in. Barrel				
SIG SAUER 200-gr. V-Crown JHP	909	20	8	2.13
NOTES: Accuracy is the average of five, five-shot groups fired from a sandbag benchrest. Velocity is the average of five rounds measured 12 feet from the gun's muzzle.				

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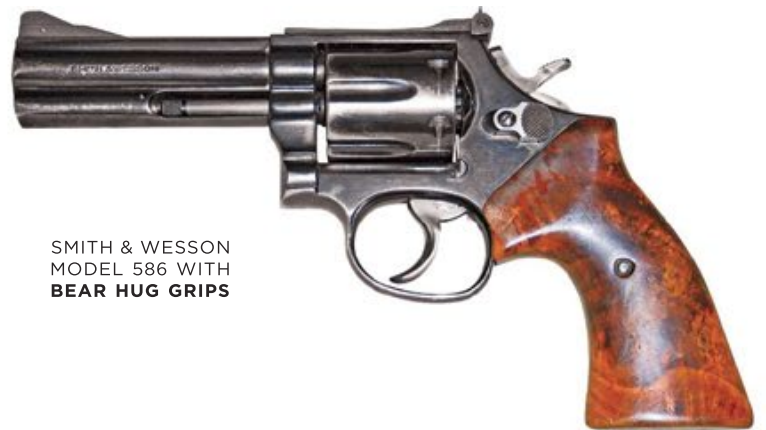
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set of figured walnut stocks made by Steve Herrett. They were perfectly fitted to the gun.

One of the best sets of revolver stocks I've ever had is a set of Bear Hug grips made by Deacon Deason. Those grips and the S&W Model 586 they were built for accompanied me to the New Mexico State Police academy and then on the road as a New Mexico State Police officer and later as a special agent with U.S. Customs. Those grips show the wear of many, many miles of carry.

Another favorite set of custom grips is the walnut stocks that adorn my S&W Model 629. They were made by Rob Rowen, and he is an expert at his trade. They are beautiful figured walnut, and they fit the grip frame perfectly.



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Other great gripmakers are out there, and there are also companies offering excellent aftermarket grips on a commercial scale. Hogue Grips is one such company. And don't be fooled. Hogue makes the overmolded rubber handgun stocks that it's widely known for, but the firm also offers what you might call semicustom handgun stocks made of wood, including some beautiful exotic types.

If you're a serious handgunner, it's well worth your time and money to look into a set of aftermarket stocks. They'll enhance your handgun, your shooting skills, and, if you're anything like me, your disposition. **ST**



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6933-RUG	22-250	4+1	22"
6935-RUG	223	5+1	22"

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US★GENERAL PRO
26", 16 DRAWER
ROLLER CABINET

- 1060 lb. Capacity
- 14,600 cu. in. of storage

LOT 61609
67831 shown

\$319.99

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SAVE \$330



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SCISSOR **WOW** SUPER COUPON



AMMO BOX

Bunker Hill Security®

LOT 61451

SAVE 64%

\$4.99

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SCISSOR
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**3 GALLON
100 PSI OILLESS
HOT DOG STYLE
AIR COMPRESSOR**

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97080 shown

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SAVE 55%

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41596224

SCISSOR **WOW** SUPER COUPON

**2500 LB.
ELECTRIC WINCH
WITH WIRELESS
REMOTE CONTROL**



SAVE \$100

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\$49.99 ~~\$89.99~~

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LOT 61258 shown
61840/61297
68146

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SCISSOR **WOW** SUPER COUPON



**10" SLIDING COMPOUND
MITER SAW**

CHICAGO ELECTRIC
POWER TOOLS

LOT 61307

61971/61972

98199 shown

SAVE \$115

\$84.99

REG. PRICE \$199.99

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41558026

SCISSOR
SUPER COUPON



**29 PIECE TITANIUM
NITRIDE COATED
HIGH SPEED STEEL
DRILL BIT SET**

LOT 5889/62281/61637 shown

NEW

\$9.99 REG. PRICE \$24.99

SAVE 60%

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41583420

SCISSOR **WOW** SUPER COUPON

HANDGUN SAFE/VAULT



Bunker Hill Security®

LOT 61581

SAVE \$70

\$79.99

~~\$89.99~~

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HaulMaster

**TRIPLE BALL
TRAILER HITCH**

LOT 61913 shown
69874/61914

SAVE 66%

\$19.99 REG. PRICE \$59.99



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SCISSOR **WOW** SUPER COUPON



**9 PIECE FULLY POLISHED
COMBINATION
WRENCH SETS**

PITTSBURGH SAE

LOT 69043/42304 shown

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41585077

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**RAPID PUMP® 3 TON
LOW PROFILE
HEAVY DUTY STEEL
FLOOR JACK**



SAVE \$85

\$84.99

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WEIGHS 77 LBS.

LOT 68049/62326
62670/61282/61253 shown

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41563973

SCISSOR
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**4000 PEAK/
3200 RUNNING WATTS
6.5 HP (212 CC)
GAS GENERATORS**



PREDATOR
GENERATORS

70 dB Noise Level

LOT 68528/69729/69676 shown

LOT 69675/69728

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41557716

SCISSOR **WOW** SUPER COUPON

**20-60 x 60mm
SPOTTING SCOPE
WITH TRIPOD**



\$39.99

~~\$49.99~~ REG. PRICE \$69.99

SAVE 42%

LOT 62774/94555 shown

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SHOOTER'S SHOWCASE

THE LAST ROUND



Maximize Your Handgun's Potential

Custom and aftermarket pistol and revolver stocks can maximize your handgun's potential by enhancing your shooting skills. **BY BART SKELTON**

I HAVE BEEN WITNESS TO SOME PRETTY WEIRD ideas that have been put into place in the shooting world over the years. Some people will do just about anything to come up with a gimmick they think will generate a few bucks. Many times, these gadgets are goofy contraptions that enhance neither the performance of a firearm nor its shooter. But then there is the custom handgun grip.

Admittedly, I've known many fellows—even some persnickety purists—who are perfectly satisfied with factory-made handgun stocks. And I have to agree that many factory-made handgun stocks are just fine. Yet factory stocks are generally all the same size, and shooters' hands aren't. This one-size-fits-all strategy creates problems for those unlucky individuals with hands that are particularly petite or exceptionally large.

The inexperienced might ask what possible difference the length and width of a set of handgun stocks could make. To me, it's all the difference in the world.

A set of stocks that don't fit the hand properly can lead to trigger-pull problems, meaning that the trigger finger may be struggling to reach the trigger or causing the finger to protrude too far through the trigger guard. Either of these circumstances can dramatically affect where the shots go, sometimes to calamitous effect.

When I approach a handgun, the first thing I notice is the grips it wears. A used revolver or pistol requiring component stocks that has been fitted with custom grips exudes an air of quality and care. It tells me that its owner thought enough of the gun to have it fitted with fine grips and that he or she wanted the firearm to fit the hand in a way that maximized its shooting potential.

Custom grips are not just vanity—even though they are mighty attractive. There are a number of good reasons to have your favorite handgun fitted with aftermarket stocks. (Unless, of course, it's a polymer job.) My hands are medium size, but I prefer a very thin set of grips on just about every model of handgun I shoot. But I have known small-handed shooters who were quite comfortable with revolvers with thick, heavy stocks and could shoot them well. It just goes to show that shooters and their tastes are different, which is all the more reason for the serious handgunner to explore what type of feel he or she likes best. The more comfortable the shooter is with the firearm, the better he or she will be able to shoot it.

My first custom stocks were for a Colt Single Action Army revolver in .45 Colt my dad rebuilt for me many years ago. The revolver was finished with a



Aftermarket handgun stocks, such as these cocobolo Hogue grips on a Colt Python, not only enhance the gun's appearance, but also improve the shooter's skills.

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